
A Christmas Present from 'Your Computer'
DOCS IN
TIM HARTNELL'S PROGRAM PRESENT
YOUR BIORHYTHMS
10 PIN BOWL
Your computer

. . . an innovative new series of specialist magazines for today's homemakers . . .

THE Lifestyle SERIES

Are you looking for inspiration and information on ways to improve your home — design a new kitchen or bathroom, plan your outdoor living area or decorate the children's room? The Lifestyle Series has all the answers. Forthcoming titles include: ● *Bathrooms* ● *Swimming Pools* ● *Outdoor Living* ● *Bedrooms and Children's Rooms* ● *Apartments* ● *Renovations and Restorations*

● *Look for these exciting titles — at your newsagent now*

LIFESTYLE, THE SERIES THAT GIVES YOU MORE — MORE IDEAS, MORE INSPIRATION, MORE INFORMATION

Tim Hartnell's PROGRAM PRESENT from Your Computer

Welcome to our Christmas Program Present!

NOW YOU'VE GOT AN EXCUSE not to lie on the beach all summer, showing that flab you've acquired through overindulgence in festive fare. With the programs in this special Christmas bonus,3 you'll have lots of reasons to stay inside, getting a suntan in the glare of your monitor screen.

Just for Fun

Next we have a number of programs *just for fun*. In this section you can dive into the sea with KAMIKAZI PARACHUTE!, clock up a strike or three with TEN-PIN BOWLING, try out your skill against the fiendish computer brain in DOMINOES, take up arms as a Yankee against the British in DANIEL MORGAN'S MILITIA, and win some synthetic money on our SUPER ZAPPO SLOT MACHINE (which is modelled on the behaviour of real slot machines, rather than just being some vague computer approximation).

Brain-Twisters and Simulations

When you've had enough of that sinful, just for pleasure stuff, you can exercise some grey matter with the board games GOMOKU, CONNECT FOUR, DRAUGHTS and OZ-THELLO. From there we move into Simulationland, in which you gain control of THE YOUR COMPUTER ROBOT, which leaves interesting patterns behind it as it strolls around your screen (somewhat like a slimy snail, I guess) and LIVIN' IN THE LODGE, in which you see how well you would do as Prime Minister of our sunburnt country.

Know Thyself

Then things get really serious, with our DOCTOR program (a very hefty version of ELIZA which I wrote to try and perform as closely as possible to the original, vast, mainframe one), THE CELTIC TAROT to see what 1987 holds for you, and our official BIORHYTHM CALCULATOR, which will back up the Tarot predictions with a little bit of weird science.

Artificial Stupidity

Just to show we haven't lost our marbles completely, you can give yourself a quickie medical checkup, with our very own drive-in, 24-hour clinic, MEDICI, and go a round or seven with our 'intelligent' NOUGHTS AND CROSSES game, which learns to improve its game as it plays against you.

Utilitarianism

If you want to know when Australia Day will fall in 1993 (and who doesn't?), THE YC PERPETUAL CALENDAR will tell you, and print out a calendar for 1987, 1993 or just about any old year you want. Let's see now, Easter in 1947 fell on the 22nd, so Aunt Mary must have gotten married on . . .

A Barrel of Fun

ALL IN ALL, there's a lot in this special bonus magazine, to ensure you make the most of your computer this summer. I've written the programs so that they will run, with minimum modification, on just about any computer on the market. You might need to modify the lines which contain RANDOMIZE in some way (or leave them out all together, if you like, as it won't make much difference), and you might want to play with the PRINT statements in some programs to make the most of your system's graphics capabilities.

And if the thought of all that typing is too much to bear, all the programs are available via the *Your Computer* Bulletin Board on (02) 953 8074. Alternatively, if you have an IBM PC, or a clone, I can provide you with a disk containing all the material in this magazine. Just send me a used fiver (or, if you must, your Visa or Bankcard details) to Interface Publications, 34 Camp Street, Chelsea 3196, Vic., and I'll send you a disk of the material.

Note that these programs are NOT *public domain, so they cannot be sold or distributed by anyone, other than downloading them from the bulletin board for your own use, or from my company on disk.*

OK, time to get down and get with it (as we tired old hackers are wont to say). Hope you enjoy our Program Present!

Tim Hartnell

BULLETIN BOARD NEWSFLASH

Believe it or not, for business or for pleasure, more spectacular than ever, the *Your Computer* Bulletin Board is back with Bells on.

Find that hard (disk) to imagine? Well, how else would we be able to share our **50-plus megabytes** of neatly catalogued **public domain software**. Even with our new whizz-bang ever-whirring fixed drive (yes, you heard right) we'll have to rotate all that soft stuff in 10 megabyte batches . . . Then we'll still have room to slap up:

☞ The regularly updated, cross-referenced, five-year index to *Your Computer* articles.

☞ Our database of the new products listed in the magazine each month.

☞ Sample programs from dLetter.

☞ Many of those useful bits of code we publish in the magazine - yours for the downloading.

And there'll be space for you to send us words of greeting, praise and bribery allsorts. Old-time users of the *YC* BBS, who've been on hold for the past few months, will also enjoy the

REVISED MESSAGING SYSTEM

NEW PHONE NUMBER - (02) 953 8074

NEW DOCUMENTATION

(Send us your name, address and member number, and we'll send you a copy.)

For showing extreme patience in the line of membership, existing users have been awarded at least six month's free access (depending on when you joined up), from this date.

Visitors are welcome, but are asked to observe dress regulations at all times.

✂ -

Name: ____

Address : ____

Suburb: ______________________________ **P/C** ______________

Yes, I want some! Here's my $30, by : ☐ Cheque/Money Order , or
☐ Bankcard ☐ Visa
☐ Mastercard ☐ American Express

Credit Card No.: ____________________ **Expiry:** __/__ **Signature:** ________________

(Unsigned credit card orders not accepted)

Mail your application, FREE, today:

Freepost No 4,
The Federal Publishing Company Pty Ltd,
PO Box 227,
Waterloo NSW 2017.

Editor
Natalie Filatoff
Concept
Tim Hartnell
Production Editor
Jake Kennedy
Managing Editor
Leo Simpson
Art Director
Rolf Hagenmaier
Cover
Brian Jones
Production
Mark Moes
Publisher
Michael Hannan
Office Services
Carmel Triulcio

OFFICES
Editorial and NSW Advertising:
180 Bourke Rd, Alexandria 2015.
Tel: (02) 693 6666
Tlx: FEDPUB AA74488
Victoria
150 Lonsdale St, Melbourne 3000.
Tel: (03) 662 1222
Tlx: FEDPUB AA34340
Western Australia
Estelle de San Miguel,
John Fairfax and Sons,
454 Murray Street, Perth 6000.
Tel: (09) 481 3171
Tlx: FAXWEST AA92635
Queensland
Damien Prins
180 Bourke Rd, Alexandria 2015.
Tel: (02) 693 6666
Tlx: FEDPUB AA74488
South Australia
Dane Hansen, John Fairfax and Sons
101 Waymouth St, Adelaide 5000.
Tel: (08) 212 1212
Tlx: AA82930

Tim Hartnell's
PROGRAM PRESENT
published by
The Federal Publishing Co Pty Ltd,
Printed by Hannanprint,
140 Bourke Rd, Alexandria 2015.
Distributed Nationally with
the December, 1986, issue of
Your Computer by
The Federal Publishing Co Pty Ltd.

Contents

Kamikaze Parachute!

IN THIS DRAMATIC GAME, you have to battle the fierce winds off the coast of Victoria, while attempting to land your parachute safely on a tiny landing pad floating on the waves of Port Philip Bay.

There are four levels of difficulty (from 'easy' to 'incredibly hard'). You use the 'Z' key to move the parachute to the left, and the 'M' to move it to the right. Make sure you engage Caps lock before you run this program. Miss the landing pad, and you'll drown.

```
  ^
 ^^^
  O
  Y
     @@@@
 SPLOSSSSSHHHHHHHHH!!
   YOU GOT SOAKED!
YOU HAVE 16 POINTS
```

```
10 REM Kamikazi Parachute!
20 REM  (C) Neal Cavalier-Smith,
     Interface Publications, 1986
30 P=20
40 GOSUB 120:REM INITIALISE
50 REM **********
60 REM MAIN CYCLE
70 GOSUB 370:REM PRINT 'CHUTE
80 GOSUB 530:REM LANDING STRIP
90 GOSUB 590:REM GET KEYS
100 GOTO 70
110 REM ***************
120 REM INITIALISATION
130 CLS
140 IF INKEY$<>"" THEN 140
150 PRINT:PRINT "SELECT YOUR GAME:"
160 PRINT TAB(6);"A - EASY"
170 PRINT TAB(6);"B - MODERATE"
180 PRINT TAB(6);"C - DIFFICULT"
190 PRINT TAB(6);"D - INCREDIBLY HARD"
200 INPUT "                  ";R$
210 IF R$<"A" OR R$>"D" THEN 200
220 DF=1/2
230 IF R$="C" THEN DF=1
240 IF R$="B" THEN DF=2
250 IF R$="A" THEN DF=3
260 STP=0:REM SCREEN TOP
270 RANDOMIZE VAL(RIGHT$(TIME$,2))
280 STP=0:REM SCREEN TOP
290 SBOT=19:REM SCREEN BOTTOM
300 SWDE=40:REM WIDTH OF SCREEN
310 SWDE=SWDE-3
320 ACC=INT(RND(1)*(SWDE-4))
330 PAD=INT(RND(1)*(SWDE-10))
340 PLUS=1
350 RETURN
360 REM ***************
370 REM PRINT PARACHUTE
380 CLS
390 FOR C=0 TO STP
400 PRINT
410 NEXT C
420 PRINT TAB(ACC);" ^ "
430 PRINT TAB(ACC);"^^^"
440 PRINT TAB(ACC);" O "
450 PRINT TAB(ACC);" Y "
460 IF STP=SBOT-4 THEN 500
470 FOR C=6 TO SBOT-STP
480 PRINT
490 NEXT C
500 STP=STP+1
510 RETURN
```

Kamikazi Parachute!

```
520 REM **************
530 REM LANDING STRIP
540 PAD=PAD+PLUS
550 IF PAD>SWDE-6 THEN PLUS=-1
560 PRINT TAB(PAD);"@@@@"
570 RETURN
580 REM ********
590 REM GET KEYS
600 IF STP=SBOT-4 THEN GOSUB 660
610 Y$=INKEY$:REM or GET Y$
620 IF Y$="Z" THEN ACC=ACC-DF
630 IF Y$="M" THEN ACC=ACC+DF
640 RETURN
650 REM ***************
660 REM SEE IF DROWNED
670 IF ACC<PAD-1 THEN 780
680 IF ACC>PAD+2 THEN 780
690 IF ACC=PAD+1 OR ACC=PAD THEN 740
700 PRINT TAB(8);"YOU MADE IT...BY THE"
710 PRINT TAB(9);"SKIN OF YOUR TEETH"
720 P=P+5
730 GOTO 810
740 PRINT TAB(12);"CONGRATULATIONS!!"
750 PRINT TAB(13);"A SAFE LANDING!"
760 P=INT(P+10/DF)
770 GOTO 810
780 PRINT TAB(12);"SPLOSSSSSHHHHHHHHH!!"

790 PRINT TAB(14);"YOU GOT SOAKED!"
800 P=P-2
810 AT=AT+1
820 IF AT=20 OR P<0 THEN 900
830 PRINT TAB(11);"YOU HAVE"P"POINTS"
840 FOR X=1 TO 1000:NEXT X
850 IF INKEY$<>"" THEN 850
860 GOSUB 260
870 RETURN
880 REM ********
890 REM DROWNED!
900 PRINT TAB(13);"YOU'VE BEEN DROWNED!"

910 PRINT:PRINT TAB(12);"YOU SCORED"P"PO
INTS"
920 PRINT TAB(16);"IN"AT"ATTEMPTS."
930 END
```

Ten-Pin Bowling

THIS PROGRAM ALLOWS YOU to play ten-pin bowling (after a fashion) by testing your reflexes.

When you run the program, you'll see the pins shown from above (cunningly represented by hi-res letter O's). After an agonizing wait, the words BOWL NOW will appear. The more quickly you react to this message, by hitting any key on your long-suffering computer, the better your bowl will be.

The program keeps score automatically, and tells you how well you're doing. If you're feeling reflexive, and want to chuck a ball or two about, this program is for you.

```
10 REM TEN-PIN BOWLING
20 REM (C) INTERFACE PUBLICATIONS, 1986
30 GOSUB 760:REM INITIALISE
40 FOR F=1 TO 10
50 FOR B=1 TO 2
60 IF B=1 THEN GOSUB 290:REM SET UP PINS

70 GOSUB 350:REM PRINT PINS
80 GOSUB 480:REM BOWL BALL
90 GOSUB 350
100 COUNT=0
110 FOR J=1 TO 10
120 IF A(J)=45 THEN COUNT=COUNT+1
130 NEXT J
140 IF COUNT=0 THEN PRINT ,"> GUTTER <"
150 IF STRIKE=F THEN PRINT ,">> STRIKE <
<":GOTO 170
160 IF COUNT=10 THEN PRINT ,":: ALL PINS
 DOWN ::"
170 IF COUNT>0 AND COUNT<10 THEN PRINT ,
"-> SPARE <-"
180 IF COUNT=1 THEN PRINT TAB(15);"ONE P
IN DOWN"
190 IF STRIKE<>F AND COUNT<>1 AND COUNT<
```

Ten-Pin Bowling

```
10 THEN PRINT TAB(14);COUNT"PINS DOWN"
200 GOSUB 850
210 NEXT B
220 SCRE=SCRE+COUNT
230 IF STRIKE=F-1 THEN PRINT ,"PLUS"COUN
T"!!":SCRE=SCRE+COUNT:STRIKE=99:GOSUB 85
0
240 NEXT F
250 PRINT "THAT'S THE END OF THE SET"
260 PRINT:PRINT "YOUR SCORE WAS"SCRE
270 END
280 REM ***********
290 REM SET UP PINS
300 FOR J=1 TO 10
310 A(J)=79
320 NEXT J
330 RETURN
340 REM **********
350 REM PRINT PINS
360 CLS:PRINT:PRINT
370 PRINT "YOUR SCORE TO THIS FRAME IS"S
CRE
380 PRINT:PRINT "THIS IS FRAME"F;
390 IF STRIKE=99 THEN PRINT " BALL"B ELS
E PRINT
400 PRINT:PRINT
410 PRINT TAB(8);CHR$(A(10));" ";CHR$(A(
9));" ";CHR$(A(8));" ";CHR$(A(7))
420 PRINT TAB(9);CHR$(A(6));" ";CHR$(A(5
));" ";CHR$(A(4))
430 PRINT TAB(10);CHR$(A(3));" ";CHR$(A(
2))
440 PRINT TAB(11);CHR$(A(1))
450 PRINT:PRINT
460 RETURN
470 REM *********
480 REM BOWL BALL
490 PRINT TAB(4);"STAND BY TO BOWL":PRIN
T
500 IF INKEY$<>"" THEN 500
510 FOR R=1 TO 300+RND(1)*Z
520 NEXT R
530 IF INKEY$<>"" THEN 510
540 PRINT TAB(7);"BOWL NOW"
550 N=0
560 N=N+.7
570 IF INKEY$="" THEN 560
580 IF B=1 AND RND(1)>.9 AND N<30 THEN N
=10
590 IF N<20 AND B=1 THEN 680
600 IF N<20 THEN T=10
610 IF N>19 AND N<30 THEN T=5+INT(RND(1)
*4)
```

```
YOUR SCORE TO THIS FRAME IS 0
THIS IS FRAME 1  BALL 1

        0 0 0 0
         0 0 0
          0 0
           0

    STAND BY TO BOWL
       BOWL NOW


YOUR SCORE TO THIS FRAME IS 16
THIS IS FRAME 3  BALL 1

        0 0 0 0
         0 0 0
          - -
           -

              -> SPARE <-
              3 PINS DOWN
```

```
620 IF N>29 AND N<42 THEN T=2+INT(RND(1)
*5)
630 IF N>41 THEN T=INT(RND(1)*4)
640 FOR K=1 TO T
650 IF RND(1)>.1 THEN A(K)=45
660 NEXT K
670 RETURN
680 REM * STRIKE *
690 FOR K=1 TO 10
700 A(K)=45
710 NEXT K
720 STRIKE=F
730 B=2
740 RETURN
750 REM ***************
760 REM INITIALISATION
770 CLS
780 RANDOMIZE VAL(RIGHT$(TIME$,2))
790 DIM A(10)
800 SCRE=0:REM SCORE
810 Z=500:REM ADJUST THIS VALUE TO GIVE
BEST RESULTS ON YOUR SYSTEM
820 STRIKE=99
830 RETURN
840 REM *****
850 REM DELAY
860 FOR L=1 TO 1300:NEXT L
870 RETURN
```

Dominoes

FROM THE EMPTY CAVERN which represents the Tim Hartnell Inner Brain of Useless Knowledge, comes this fascinating fact: The present-day game of dominoes, which was probably developed in Italy around 200 years ago, is based on a Chinese tile game, invented centuries before the Italians got hold of them. And this program was invented about 20 minutes ago, as a silicon version of the Italian game.

To play dominoes, we use 28 oblong 'stones' or 'tiles'. Each tile is divided into two sections, and 'pips' (like the dots on dice) are placed on each section. The pips range from none (blank) to six. The dominoes are placed faced downward on a table, and each player selects seven tiles for his or her own use. The others are left on the table as the reserve, or 'bone yard' as it is quaintly known.

The computer has the first move (it's easy to change this so you can move first, if you like) and you then take it in turns to place your dominoes down, making sure that you put matching pips together (so that if the computer's first dominoe was 67, you could put down any dominoe which had a 6 or a 7 on it). Blanks count as any number. If you can't move, you enter a zero, and you'll be given an extra dominoe, from the 'bone yard'. The game ends when one of the players manages to get rid of all of his or her pieces, or when neither player can move.

You'll find the computer puts up a solid defence in this game.

```
10 REM DOMINOES
20 REM (C) TIM HARTNELL, 1986
30 REM INTERFACE PUBLICATIONS
40 GOSUB 1620:REM INITIALISE
50 REM **********
60 REM MAIN CYCLE
70 NTFLAG=0
80 TFLAG=0
90 GOSUB 1340:IF CLEFT=14 THEN 220
100 GOSUB 560:REM COMPUTER MOVES
110 IF NTFLAG=1 THEN 140
120 IF TFLAG=0 THEN 150
130 PRINT:PRINT "I'LL TAKE A TILE FROM T
HE BONEYARD":GOSUB 1590
140 MF=9
150 GOSUB 1490:REM PRINTOUT
160 GOSUB 1420:IF HLEFT=14 THEN 220
170 GOSUB 970:REM HUMAN MOVES
180 GOSUB 1490:REM PRINTOUT
190 IF NTFLAG=2 THEN 220:REM GAME OVER
200 GOTO 70
210 REM ***********
220 REM END OF GAME
230 PRINT TAB(8);"END OF GAME":PRINT:GOS
UB 1590
240 MF=9
250 GOSUB 1490
260 CS=0:HS=0
270 PRINT "MY TILES:"
280 FOR J=1 TO 14:PRINT C$(J);":";:NEXT
J
290 PRINT:PRINT:PRINT "YOUR TILES:"
300 FOR J=1 TO 14:PRINT H$(J);":";:NEXT
J:PRINT:PRINT
310 FOR J=1 TO 14
320 IF C$(J)<>"" THEN CS=CS+VAL(RIGHT$(C
$(J),1))+VAL(LEFT$(C$(J),1))
330 IF H$(J)<>"" THEN HS=HS+VAL(RIGHT$(H
$(J),1))+VAL(LEFT$(H$(J),1))
340 H$(J)="":C$(J)=""
350 NEXT J
360 PRINT:PRINT "AT THE END OF THAT GAME
, YOUR SCORE"
370 PRINT TAB(6);"IS"HS"AND MINE IS"CS
380 PRINT:PRINT TAB(8);
390 IF CS=HS THEN PRINT "IT'S A DRAW"
400 IF CS<HS THEN PRINT "SO I'M THE WINN
ER":CGAME=CGAME+1
410 IF HS<CS THEN PRINT "SO YOU'RE THE W
INNER":HGAME=HGAME+1
420 PRINT:PRINT
430 PRINT CGAME"GAMES TO ME,"HGAME"GAMES
 TO YOU"
```

Dominoes

```
440 PRINT:PRINT
450 IF CGAME+HGAME<5 THEN 500
460 PRINT "THAT'S FIVE GAMES WE'VE PLAYE
D"
470 IF CGAME>HGAME THEN PRINT TAB(7);"AN
D I'M THE OVERALL WINNER"
480 IF CGAME<HGAME THEN PRINT TAB(5);"AN
D YOU'RE THE OVERALL WINNER"
490 GOTO 530
500 PRINT "ENTER 'Y' FOR A NEW GAME, 'N'
 TO END"
510 INPUT L$
520 IF L$="Y" THEN CLS:GOSUB 1680:GOTO 7
0
530 PRINT:PRINT TAB(8);"OK, THANKS FOR T
HE GAMES"
540 END
550 REM **************
560 REM COMPUTER MOVES
570 MF=1
580 IF P$="" THEN 800:REM FIRST MOVE
590 PRINT "BEFORE THIS MOVE I HAVE"14-CL
EFT"TILES..."
600 GOSUB 1590
610 X=0:FLAG=0
620 X=X+1
630 IF LEFT$(C$(X),1)=LEFT$(P$,1) THEN F
LAG=1:GOSUB 890:RETURN
640 IF RIGHT$(C$(X),1)=LEFT$(P$,1) THEN
FLAG=2:GOSUB 890:RETURN
650 IF LEFT$(C$(X),1)=RIGHT$(P$,1) THEN
FLAG=3:GOSUB 890:RETURN
660 IF RIGHT$(C$(X),1)=RIGHT$(P$,1) THEN
 FLAG=4:GOSUB 890:RETURN
670 IF X<14 THEN 620
680 PRINT "I CANNOT MOVE...":GOSUB 1590

690 X=X+1
700 IF D$(X)="" THEN 750
710 Y=0
720 Y=Y+1
730 IF C$(Y)="" THEN C$(Y)=D$(X):D$(X)="
":TFLAG=1:RETURN
740 IF Y<14 THEN 720
750 IF X<28 THEN 690
760 PRINT "THERE ARE NO TILES LEFT IN BO
NEYARD"
770 GOSUB 1590
780 NTFLAG=NTFLAG+1
790 RETURN
800 REM * FIRST MOVE **
810 X=0
820 X=X+1
830 IF LEFT$(C$(X),1)=RIGHT$(C$(X),1) TH
EN 860:REM DOUBLE FOUND
840 IF X<7 THEN 820
850 X=INT(RND(1)*7)+1
860 P$=C$(X):C$(X)=""
870 RETURN
880 REM *********
890 REM MAKE MOVE
900 IF FLAG=1 THEN P$=RIGHT$(C$(X),1)+LE
FT$(C$(X),1)+":"+P$
910 IF FLAG=2 THEN P$=C$(X)+":"+P$
920 IF FLAG=3 THEN P$=P$+":"+C$(X)
930 IF FLAG=4 THEN P$=P$+":"+RIGHT$(C$(X
),1)+LEFT$(C$(X),1)
940 C$(X)=""
950 RETURN
960 REM ***********
970 REM HUMAN MOVES
980 MF=2
990 PRINT:PRINT "HERE IS YOUR HAND:":PRI
NT
1000 FOR G=1 TO 14
1010 IF H$(G)<>"" THEN PRINT G"- ";H$(G)

1020 NEXT G
1030 PRINT:PRINT "ENTER THE NUMBER OF TH
E PIECE YOU WANT  TO MOVE, 0 TO PASS"
1040 INPUT "             ";M
1050 IF M<0 OR M>14 THEN 1040
1060 IF M=0 THEN 1180:REM PASS
1070 IF H$(M)="" THEN 1040
1080 PRINT "AT THE START (S) OR END (E)?
"
1090 INPUT "             ";A$
1100 IF A$<>"S" AND A$<>"E" THEN 1090
1110 IF A$="E" THEN 1140
1120 IF RIGHT$(H$(M),1)=LEFT$(P$,1) THEN
 P$=H$(M)+":"+P$:GOTO 1160
1130 P$=RIGHT$(H$(M),1)+LEFT$(H$(M),1)+"
:"+P$:GOTO 1160
1140 IF LEFT$(H$(M),1)=RIGHT$(P$,1) THEN
 P$=P$+":"+H$(M):GOTO 1160
1150 P$=P$+":"+RIGHT$(H$(M),1)+LEFT$(H$(
M),1)
1160 H$(M)=""
1170 RETURN
1180 REM HUMAN PASS
1190 X=0
1200 X=X+1
1210 IF H$(X)="" THEN 1230
1220 IF X<14 THEN 1200
1230 Y=14
1240 Y=Y+1
```

Dominoes

```
        AFTER MY MOVE, THIS IS THE BOARD:

        02:26:66:63:33:31

        HERE IS YOUR HAND:

         2 - 54
         3 - 11
         5 - 61
         7 - 40

        ENTER THE NUMBER OF THE PIECE YOU WANT  TO MOVE, 0 TO PASS
                    ? 5
        AT THE START (S) OR END (E)?
                    ? E
```

```
1250 IF D$(Y)<>"" THEN 1300
1260 IF Y<28 THEN 1240
1270 PRINT "NO TILES LEFT IN BONEYARD"
1280 NTFLAG=NTFLAG+1
1290 RETURN
1300 H$(X)=D$(Y):D$(Y)=""
1310 PRINT "YOU HAVE DRAWN :";H$(X);":"
1320 GOSUB 1590
1330 RETURN
1340 REM COMPUTER OUT?
1350 REM **************
1360 CLEFT=0
1370 FOR J=1 TO 14
1380 IF C$(J)="" THEN CLEFT=CLEFT+1
1390 NEXT J
1400 RETURN
1410 REM ***********
1420 REM HUMAN OUT?
1430 HLEFT=0
1440 FOR J=1 TO 14
1450 IF H$(J)="" THEN HLEFT=HLEFT+1
1460 NEXT J
1470 RETURN
1480 REM *********
1490 REM PRINT OUT
1500 CLS
1510 IF MF=9 THEN 1550
1520 CLS
1530 IF MF=1 THEN PRINT "AFTER MY MOVE,
";:GOTO 1550
1540 PRINT "AFTER YOUR MOVE, ";
1550 PRINT "THIS IS THE BOARD:"
1560 PRINT:PRINT
1570 PRINT P$
1580 PRINT
1590 FOR Q=1 TO 1000:NEXT Q
1600 RETURN
1610 REM ***************
1620 REM INITIALISATION
1630 CLS
1640 RANDOMIZE VAL(RIGHT$(TIME$,2))
1650 DIM D$(28),H$(14),C$(14)
1660 PRINT:PRINT "STAND BY, CHAMP!"
1670 REM * SET UP DOMINOES *
1680 X=0
1690 FOR J=0 TO 6
1700 FOR K=0 TO J
1710 X=X+1
1720 D$(X)=RIGHT$(STR$(J),1)+RIGHT$(STR$
(K),1)
1730 NEXT K
1740 NEXT J
1750 PRINT:PRINT
1760 REM * SHUFFLE DOMINOES *
1770 REM MOSES/OAKFORD ROUTINE (1963)
1780 FOR J=28 TO 1 STEP -1
1790 T=INT(RND(1)*J)+1
1800 H$=D$(T)
1810 D$(T)=D$(J)
1820 D$(J)=H$
1830 NEXT J
1840 REM * ALLOT HANDS *
1850 FOR J= 1 TO 7
1860 H$(J)=D$(J):D$(J)=""
1870 C$(J)=D$(J+7):D$(J+7)=""
1880 NEXT J
1890 P$="":REM HOLDS CURRENT BOARD
1900 HGAME=0:CGAME=0:REM TOTALS WON
1910 RETURN
```

Daniel Morgan's Militia

WAY BACK IN 1781, when Australia was just a gleam in Governor Philip's eye, the Brits were bashing hell out of the Americans in the War of Independence. The tide turned, however, in the Battle of Cowpens, when troops under the control of General Daniel Morgan scored a convincing victory.

In this program, you control Morgan's troops. There are ten levels of difficulty. The British are represented by numbers at the bottom of the screen, and they advance relentlessly towards you at the top. Your men are represented by a letter 'V' (classy graphics, huh?) and you move your men back and forth with the 'Z' key (to move to the left) and the 'M' key (to move to the right). You fire at the British by pressing the space bar.

Your score is related to two things: the numbers your shots destroy, and their position within the British ranks. There are four rows of British soldiers. The front row is worth the least, and those in the final row are worth the most.

Go get 'em, Daniel Morgan!

```
  IT IS 2 AM ON JANUARY 17, 1781


THIS IS YOUR TIME OF TESTING,
   GENERAL MORGAN


ENTER YOUR CHOICE OF LEVEL (1 TO 10)

       10 IS THE MOST DIFFICULT
        1 IS THE EASIEST

            ? 4
```

```
MORALE IS 284    YOU'VE FIRED 10 SHOTS
          ^^^^^^^V^^^^
          I           I
          I           I
          I           I
          I           I
          I           I
          I           I
          I           I
          I           I
          I 7        6I
          I9  6     2 I
          I9  2   5 5 I
          I 3 1   46 6I
```

```
10 REM DANIEL MORGAN'S MILITIA
20 REM (c) Tim Hartnell,
     Interface Publications, 1986
30 GOSUB 660:REM INITIALISE
40 GOTO 290
50 REM **********
60 REM MAIN CYCLE
70 CLS
80 COUNT=COUNT-LEV/10
90 PRINT "MORALE IS"INT(SCR)"  YOU'VE FI
RED"SHOTS"SHOTS"
100 IF COUNT<1 THEN EDFLAG=2
110 IF SHOTS>35-LEV THEN EDFLAG=3
120 PRINT TAB(11);H$
130 FOR J=1 TO INT(COUNT+.5)
140 PRINT TAB(11);"I           I":REM
       10 SPACES
150 NEXT J
160 PRINT TAB(11);"I";A$;"I"
170 PRINT TAB(11);"I";B$;"I"
180 PRINT TAB(11);"I";C$;"I"
190 PRINT TAB(11);"I";D$;"I"
200 IF EDFLAG=1 THEN PRINT:PRINT TAB(4);
"YOU'VE BEATEN THE BRITISH!":GOTO 330
210 IF EDFLAG=2 THEN PRINT:PRINT TAB(4);
"THE BRITISH HAVE BEATEN YOU":GOTO 330
220 IF EDFLAG=3 THEN PRINT:PRINT TAB(3);
"YOU'RE OUT OF AMMUNITION!":GOTO 330
230 F$=INKEY$
240 REM DELETE NEXT LINE FOR A MUCH MORE
       DIFFICULT GAME...
250 IF F$<>"Z" AND F$<>"M" AND F$<>" " T
HEN 230
260 IF F$="Z" THEN PST=PST-1:IF PST<1 TH
EN PST=1
270 IF F$="M" THEN PST=PST+1:IF PST>10 T
HEN PST=10
```

Daniel Morgan's Militia

```
280 IF F$=" " THEN SHOTS=SHOTS+1:GOSUB 4
20:REM FIRE
290 M$="^^^^^^^^^^"
300 H$=LEFT$(M$,PST)+"V"+RIGHT$(M$,11-PS
T)
310 GOTO 70
320 REM ***********
330 REM END OF GAME
340 PRINT
350 EFFECT=SHOTS
360 IF EDFLAG=1 THEN FFFECT=.1
370 IF EDFLAG=3 THEN EFFECT=97
380 PRINT TAB(4);"YOUR TROOPS' RATING IS
"INT((1974*SCR)/(EFFECT*LEV+.0005))
390 IF INKEY$<>"" THEN 390
400 END
410 REM ***************
420 REM FIRE SUBROUTINE
430 IF MID$(A$,PST,1)=" " THEN 470
440 SCR=SCR+VAL(MID$(A$,PST,1))*LEV
450 MID$(A$,PST,1)=" "
460 RETURN
470 IF MID$(B$,PST,1)=" " THEN 510
480 SCR=SCR+2*VAL(MID$(B$,PST,1))*LEV/3
490 MID$(B$,PST,1)=" "
500 RETURN
510 IF MID$(C$,PST,1)=" " THEN 550
520 SCR=SCR+4*VAL(MID$(C$,PST,1))*LEV/2.
5
530 MID$(C$,PST,1)=" "
540 RETURN
550 IF MID$(D$,PST,1)=" " THEN 590
560 SCR=SCR+8*VAL(MID$(D$,PST,1))*LEV/1.
3
570 MID$(D$,PST,1)=" "
580 RETURN
590 IF A$<>"          " THEN RETURN:REM
10 SPACES
600 IF B$<>"          " THEN RETURN:REM
10 SPACES
610 IF C$<>"          " THEN RETURN:REM
10 SPACES
620 IF D$<>"          " THEN RETURN:REM
10 SPACES
630 EDFLAG=1
640 RETURN
650 REM ***************
660 REM INITIALISATION
670 CLS
680 GOSUB 1020:REM GET LEVEL
690 RANDOMIZE VAL(RIGHT$(TIME$,2))
700 FOR Z=1 TO 10
710 IF RND(1)<.6 THEN 750
720 GOSUB 980
730 A$=A$+T$
740 GOTO 760
750 A$=A$+" "
760 IF RND(1)<.6 THEN 800
770 GOSUB 980
780 B$=B$+T$
790 GOTO 810
800 B$=B$+" "
810 IF RND(1)<.6 THEN 850
820 GOSUB 980
830 C$=C$+T$
840 GOTO 860
850 C$=C$+" "
860 IF RND(1)<.6 THEN 900
870 GOSUB 980
880 D$=D$+T$
890 GOTO 910
900 D$=D$+" "
910 NEXT Z
920 COUNT=15
930 PST=INT(RND(1)*9)+1
940 SCR=0
950 EDFLAG=0
960 SHOTS=0
970 RETURN
980 T$=STR$(INT(RND(1)*9)+1)
990 T$=RIGHT$(T$,1)
1000 RETURN
1010 REM **********
1020 REM GET LEVEL
1030 PRINT:PRINT:PRINT
1040 PRINT TAB(3);"IT IS 2 AM ON JANUARY
 17, 1781"
1050 PRINT:PRINT
1060 PRINT TAB(3);"THIS IS YOUR TIME OF
TESTING,                GENERAL MORGAN"
1070 PRINT:PRINT
1080 PRINT "ENTER YOUR CHOICE OF LEVEL (
1 TO 10)"
1090 PRINT:PRINT TAB(8);"10 IS THE MOST
DIFFICULT"
1100 PRINT TAB(12);"1 IS THE EASIEST"
1110 PRINT:INPUT "                ";LEV
1120 IF LEV<1 OR LEV>10 THEN 1110
1130 RETURN
```

Super Zappo Slot Machine

IN THE 1930S IN AMERICA, the slot or fruit machine was considered by many to be a product from the devil's factory of devices designed to mislead men from the true path. If you look through yellowing American newspapers of the period, you'd be tempted to think that all politicians did for publicity in those days was attack slot machines with an axe — whenever a photographer happened to be present.

The 'evil' of the slot machine lies in the gross ease with which the machine is played. You put a coin (or token) in a slot, and press a button or pull a handle. The machine — the vast majority of the time — puts on a little display for you, with whirling images, lights and bells, and then eats your coin. Despite the illusion of interaction created by the fact that the player starts the little display by pressing a button or pulling a handle, and additional buttons with names like 'Nudge', 'Wink, wink' and 'Hold', a particularly dumb robot or a trained pigeon, rat or rabbit could play the machine as well as you can.

In a test conducted a few years ago by a Sydney newspaper, 10 machines were tested, one in each of 10 different locations. In the test, 1000 coins were played through each machine, and any winnings were set aside (that is, they were not fed back into the machine). In the 10,000 coins played, not a single jackpot was recorded. The worst return was 62%, with 84% as the best. Further, the player was temporarily ahead on only two of the machines.

Why would anybody play such machines, given such dreadful odds? Who knows? This program will enable you to play for as long as you like, and lose as much as you like. It is a three-reel machine, which behaves like a genuine three-reel Vegas machine, with the likelihood of particular symbols appearing strictly in accordance with true slot machine odds. *Play on, sucker.*

```
10 REM Super Zappo Slct Machine
20 REM (c) Tim Hartnell
    Interface Publications, 1986
30 GOTO 70
40 M$=A$(1):FOR D=2 TO 20:A$(D-1)=A$(D):
NEXT D:A$(20)=M$:RETURN
50 M$=B$(1):FOR D=2 TO 20:B$(D-1)=B$(D):
NEXT D:B$(20)=M$:RETURN
60 M$=C$(1):FOR D=2 TO 20:C$(D-1)=C$(D):
NEXT D:C$(20)=M$:RETURN
70 GOSUB 630:REM Initialize
80 REM ********************************
90 REM Here we go
100 GO=GO+1:GOSUB 960:PRINT "This is go
number"GO
110 PRINT TAB(3);"=> Your money: $";MID$
(STR$(CASH),2);" <="
120 PRINT TAB(3);"=> Your winnings: $";M
ID$(STR$(WG),2);" <="
130 GOSUB 960
140 IF INKEY$<>"" THEN 140
150 PRINT TAB(3);"=> OK, press <RETURN>
to pull the handle <="
160 PRINT TAB(12);"(or any other key to
quit)"
170 W$=INKEY$:IF W$="" THEN 170
180 IF W$<>CHR$(13) THEN PRINT:PRINT TAB
(27);"OK, see you later, buddy!":END
190 CLS:CASH=CASH-1:GOSUB 960
200 GOSUB 450:REM Spin the reels
210 GOSUB 250:REM Payouts
220 IF CASH<1 THEN PRINT "You've run out
 of money, buddy!":END
230 GOSUB 950:GOTO 90
240 REM ********************************
250 REM Payouts
260 W=VAL(LEFT$(A$(1),1)):X=VAL(LEFT$(B$
(1),1)):Y=VAL(LEFT$(C$(1),1))
270 Z=100*W+10*X+Y
280 WN=0:Q$=""
290 IF Z=222 THEN WN=120:Q$="Jackpot! Th
ree bars!"
300 IF Z=111 THEN WN=16:Q$="Three bells"

310 IF Z=112 THEN WN=16:Q$="Two bells, o
ne bar"
320 IF Z=333 THEN WN=12:Q$="Three plums"

330 IF Z=332 THEN WN=12:Q$="Two plums, o
ne bar"
340 IF Z=444 THEN WN=8:Q$="Three oranges
"
```

Super Zappo Slot Machine

```
350 IF Z=442 THEN WN=8:Q$="Two oranges,
one bar"
360 IF Z=556 THEN WN=4:Q$="Two cherries,
 one lemon"
370 IF Z=551 THEN WN=4:Q$="Two cherries,
 one bell"
380 IF Z>551 AND Z<556 THEN WN=2:Q$="Two
 cherries"
390 IF WN=0 THEN PRINT TAB(23);"=> No lu
ck that time <=":GOSUB 950:RETURN
400 GOSUB 960:E$=D$(INT(RND(1)*6+1)):E$=
E$+E$+E$:PRINT
410 PRINT TAB(5);E$;" ";Q$;" pays $";MID
$(STR$(WN),2);" ";E$
420 PRINT:WG=WG+WN:RETURN
430 END
440 REM **********************
450 REM Spin the reels
460 FOR E=1 TO INT(3+RND(1)*6)
470 GOSUB 40:GOSUB 50:GOSUB 60
480 PRINT TAB(5);MID$(A$(1),2);TAB(15);M
ID$(B$(1),2);TAB(25);MID$(C$(1),2)
490 NEXT E
500 GOSUB 960:PRINT " => ";MID$(A$(1),2)
:GOSUB 960
510 REM ********************
520 FOR E=1 TO INT(3+RND(1)*6)
530 GOSUB 50:GOSUB 60
540 PRINT TAB(15);MID$(B$(1),2);TAB(25);
MID$(C$(E),2):NEXT E
550 GOSUB 960:PRINT " => ";MID$(A$(1),2)
;TAB(15);MID$(B$(1),2):GOSUB 960
560 REM ********************
570 FOR E=1 TO INT(3+RND(1)*6)
580 GOSUB 60:PRINT TAB(26);MID$(C$(1),2)
:NEXT E:GOSUB 960
590 PRINT " => ";MID$(A$(1),2);TAB(15);M
ID$(B$(1),2);TAB(25);MID$(C$(1),2)
600 GOSUB 960
610 RETURN
620 REM **********************
630 REM Initialization
640 DIM A$(20),B$(20),C$(20),D$(6)
650 GO=0:WG=0:REM WG - winnings
660 CLS:RANDOMIZE:CLS
670 PRINT:PRINT "How much money are you
starting with (in dollars)";
680 INPUT CASH:PRINT
690 IF CASH<1 THEN PRINT "You won't get
far with that!":GOTO 670
700 FOR J=1 TO 20:PRINT TAB(2*J);"*  $ *
"
710 READ E$:A$(J)=E$
720 READ E$:B$(J)=E$
730 READ E$:C$(J)=E$
740 GOSUB 970:NEXT J
750 FOR J=1 TO 6:READ E$:D$(J)=E$:GOSUB
960:NEXT J
760 CLS:RETURN
770 REM **********************
780 DATA "1BELL","1BELL","1BELL","2BAR",
"3PLUM","4ORANGE"
790 DATA "5CHERRY","5CHERRY","3PLUM","1B
ELL","2BAR","1BELL"
800 DATA "4ORANGE","4ORANGE","2BAR","5CH
ERRY","1BELL","3PLUM"
810 DATA "6LEMON","5CHERRY","4ORANGE","5
CHERRY","4ORANGE","1BELL"
820 DATA "3PLUM","3PLUM","6LEMON","4ORAN
GE","1BELL","4ORANGE"
830 DATA "5CHERRY","5CHERRY","3PLUM","1B
ELL","3PLUM","2BAR"
840 DATA "4ORANGE","4ORANGE","6LEMON","3
PLUM","1BELL","4ORANGE"
```

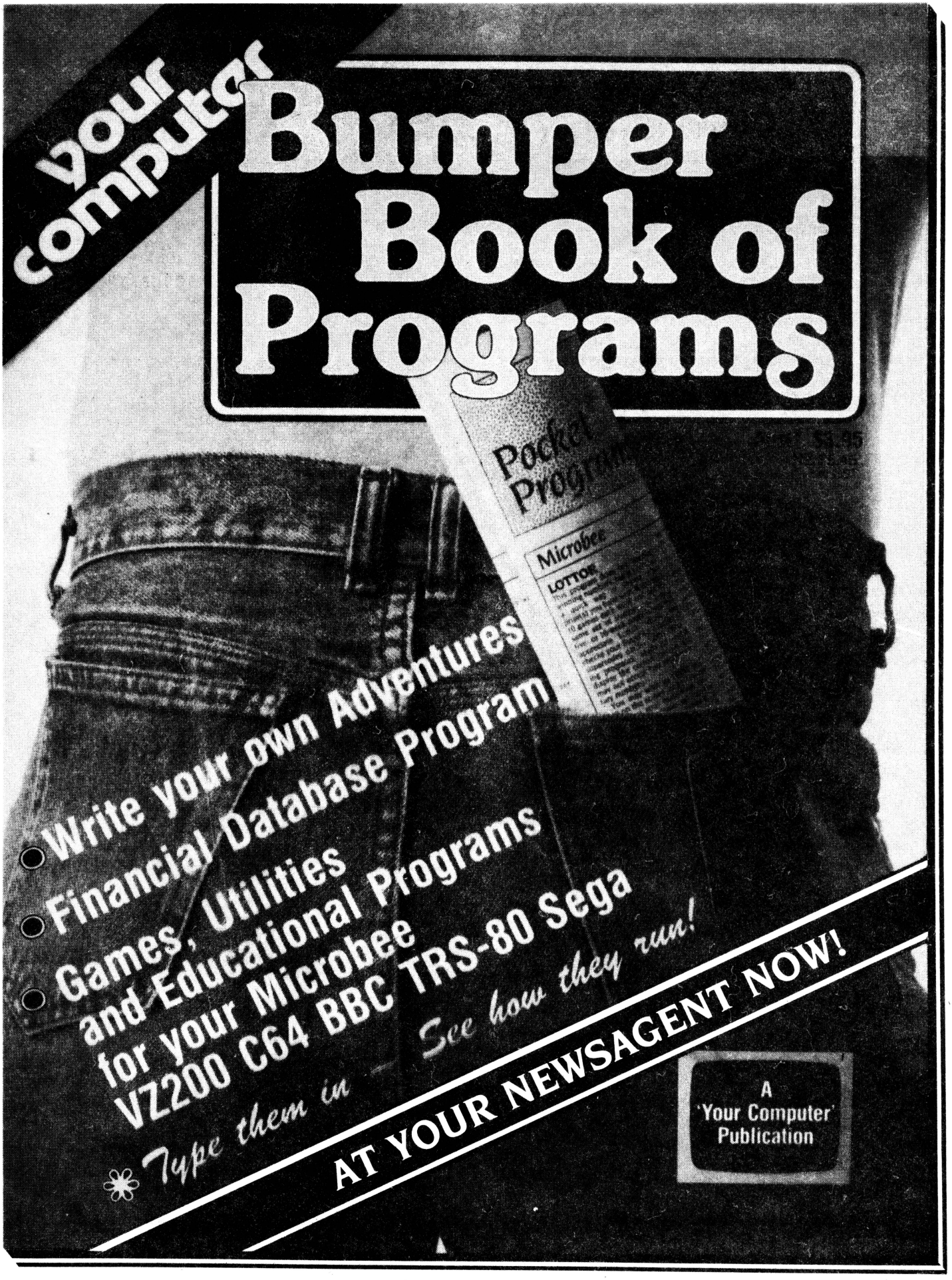
```
= = = = = = = = = = = = =
     PLUM       BELL       LEMON
     ORANGE     CHERRY     BAR
     CHERRY     ORANGE     BELL
= = = = = = = = = = = = =
 => CHERRY
= = = = = = = = = = = = =
                BAR        ORANGE
                BELL       BELL
                CHERRY     PLUM
                ORANGE     BELL
                BELL       ORANGE
                PLUM       BAR
                CHERRY     ORANGE
= = = = = = = = = = = = =
 => CHERRY      CHERRY
= = = = = = = = = = = = =
                           LEMON
                           CRANGE
                           PLUM
                           BAR
                           LEMON
```

Super Zappo Slot Machine

```
= = = = = = = = = = = = =
 => CHERRY    CHERRY
= = = = = = = = = = = = =
                          LEMON
                          ORANGE
                          PLUM
                          BAR
                          LEMON
                          ORANGE
= = = = = = = = = = = = =
 => CHERRY    CHERRY    ORANGE
= = = = = = = = = = = = =
= = = = = = = = = = = = =

    *** Two cherries pays $2 ***

= = = = = = = = = = = = =
This is go number 5
  => Your money: $451 <=
  => Your winnings: $2 <=
= = = = = = = = = = = = =
  => OK, press <RETURN> to pull the handle <=
           (or any other key to quit)
```

```
850 DATA "5CHERRY","5CHERRY","3PLUM","1B
ELL","4ORANGE","1BELL"
860 DATA "2BAR","2BAR","4ORANGE","4ORANG
E","1BELL","3PLUM"
870 DATA "5CHERRY","5CHERRY","6LEMON","3
PLUM","4ORANGE","2BAR"
880 REM       1 - BELL
890 REM       2 - BAR
900 REM       3 - PLUM
910 REM       4 - ORANGE
920 REM       5 - CHERRY
930 REM       6 - LEMON
940 DATA "*","&","$","#","%","!"
950 FOR T=1 TO 400:NEXT T:RETURN
960 PRINT "= = = = = = = = = = = =
 ="
970 REM Add your computer's sound comman
d here
980 RETURN
```

Notes and High Scores –


Your computer
Bumper Book of Programs
Pocket Programs
Microbee
LOTTOS
Write your own Adventures
Financial Database Program
Games, Utilities
and Educational Programs
for your Microbee
VZ200 C64 BBC TRS-80 Sega
Type them in
See how they run!
AT YOUR NEWSAGENT NOW!
A 'Your Computer' Publication

Oz-thello

INVENTED IN THE LATE eighteen hundreds, Oz-thello is played on an eight by eight checkerboard. When played on a board (as opposed to being played within a computer), you use pieces which have different colours on each side. The game begins with four pieces placed on the centre squares.

From this point on, you move by placing one of your pieces next to a computer piece or pieces, with one of your pieces further on. When that happens, all the computer pieces 'reverse' to become your pieces.

Here's how it works. Suppose a line of pieces looked like this:

OXXXX

and you decided to put your piece (the O) at the end of the line like this:

OXXXXO

The computer pieces would reverse, so the line looked like this after your move:

OOOOOO

The game continues until every square on the board is filled, or neither player can move. As you can see, fortunes can change swiftly in this game, as rows branching off your position (such as on the diagonals) can be changed with a single move. If you cannot move at any time, you signal this to the computer by entering a zero. Other moves are entered by typing in the co-ordinates of the square into which you wish to place your piece. Oz-thello was written by Graham Charlton.

```
      COMPUTER IS X
        HUMAN IS O

     1 2 3 4 5 6 7 8
  1  . . . . . . . .  1
  2  . . . . . . . .  2
  3  . . O . . . . .  3
  4  . . . O X X . .  4
  5  . . . X O X . .  5
  6  . . . X O X . .  6
  7  . . . . . X . .  7
  8  . . . . . X . .  8
     1 2 3 4 5 6 7 8
Computer: 8
Human: 4
ENTER YOUR MOVE? 47
```

```
10 REM Oz-Thello
20 REM     (c) Tim Hartnell,
       Interface Publications, 1986
30 GOTO 750
40 PRINT "MY MOVE..."
50 S = XOX:T = X:H = 0
60 FOR A = 2 TO 9:FOR B = 2 TO 9
70 IF A(A,B) <> 46 THEN 220
80 Q = 0
90 FOR C = -1 TO 1:FOR D = -1 TO 1
100 K = 0:F = A:G = B
110 IF A(F+C,G+D) <> S THEN 140
120 K = K + 1:F = F + C:G = G + D
130 GOTO 110
140 IF A(F+C,G+D) <> T THEN 160
150 Q = Q + K
160 NEXT D:NEXT C
170 IF A = 2 OR A = 9 OR B = 2 OR B = 9
THEN Q = Q*2
180 IF A = 3 OR A = 8 OR B = 3 OR B = 8
THEN Q = Q/2
190 IF (A = 2 OR A = 9) AND (B = 3 OR B
= 8) OR (A = 3 OR A = 8) AND (B = 2 OR B
 = 9) THEN Q = Q/2
200 IF Q < H OR (RND(1)<.3 AND Q = H) TH
EN 220
210 H = Q:M = A:N = B
220 NEXT B:NEXT A
230 IF H = 0 AND R = 0 THEN 700
240 IF H = 0 THEN 260
250 GOSUB 590
260 GOSUB 380
270 INPUT "ENTER YOUR MOVE ";R
280 REM ENTER 0 TO PASS
290 S = X:T = XOX
300 IF R = 0 THEN 360
310 IF R < 11 OR R > 88 THEN 270
320 R = R + 11
330 M = INT(R/10)
340 N = R - 10*M
350 GOSUB 590
360 GOSUB 380
370 GOTO 40
380 REM PRINT BOARD
390 C = 0:H = 0
400 CLS:REM OR 'HOME'
410 PRINT
420 PRINT "      COMPUTER IS X"
430 PRINT "        HUMAN IS O"
440 PRINT
450 PRINT TAB(5);"1 2 3 4 5 6 7 8"
460 FOR B = 2 TO 9:PRINT B - 1;" ";
470 FOR D = 2 TO 9
```

Oz-thello

```
480 PRINT CHR$(A(B,D));" ";
490 IF A(B,D) = X THEN C = C + 1
500 IF A(B,D) = XOX THEN H = H + 1
510 NEXT D
520 PRINT B - 1
530 NEXT B
540 PRINT TAB(5);"1 2 3 4 5 6 7 8"
550 PRINT:PRINT
560 PRINT "Computer:"C
570 PRINT:PRINT"Human:"H
580 RETURN
590 FOR C = - 1 TO 1:FOR D = - 1 TO 1
600 F = M:G = N
610 IF A(F+C,G+D) <> S THEN 640
620 F = F + C:G = G + D
630 GOTO 610
640 IF A(F+C,G+D) <> T THEN 680
650 A(F,G) = T
660 IF M = F AND N = G THEN 680
670 F = F - C:G = G - D:GOTO 650
680 NEXT D:NEXT C
690 RETURN
700 GOSUB 380
710 IF C > H THEN PRINT "I'M THE CHAMP!"

720 IF H > C THEN PRINT "YOU'RE THE CHAM
P!"
730 IF H = C THEN PRINT "IT'S A DRAW!"
740 END
750 CLS
760 X = ASC("X"):XOX = ASC("O")
770 DIM A(10,10)
780 FOR B = 1 TO 10:FOR C = 1 TO 10
790 IF B <> 1 AND C <>1 AND B <> 10 AND
C <> 10 THEN A(B,C) = ASC(".")
800 NEXT C:NEXT B
810 A(5,5) = X: A(6,6) = X
820 A(6,5) = XOX: A(5,6) = XOX
830 P = 0
840 PRINT "DO YOU WANT THE FIRST MOVE"
850 PRINT ,"Y OR N"
860 INPUT W$
870 GOSUB 380
880 IF W$ = "Y" OR W$ = "y" THEN GOTO 27
0
890 GOTO 40
```

Connect Four

IN THIS GAME, TWO players take turns placing pieces in the lowest available position in the columns on a game board, trying to be the first to get four of their pieces to form a line in any direction.

The program, written by Tony Pearce, plays extremely well, and will prove a difficult, almost impossible, opponent to defeat. It assigns a value to each possible move, and then evaluates each of these moves in terms of whether or not this will help win the game. It then selects the move with the best potential.

In the program as listed, your pieces are shown as an 'o', and the computer's pieces as 'M' (for 'machine', I think). If you want to change them, simply modify line 140, with C$ being the computer piece, and H$ the human piece.

```
10 REM **** CONNECT FOUR ****
20 REM (c) Tim Hartnell, 1986
30 CLS
40 PRINT
50 PRINT
60 PRINT "CONNECT FOUR"
70 PRINT
80 PRINT "ENTER YOUR MOVE AS A NUMBER BE
TWEEN"
90 PRINT "1 AND 8, ENTER 0 FOR A NEW GAM
E..."
100 FOR F=1 TO 1000:NEXT F
110 DIM A$(10,10),B(10,2)
120 FLAG=0
130 REM CHANGE NEXT LINE FOR YOUR OWN
      CHOICE OF SYMBOLS (C$-COMPUTER)
140 C$="M":H$="o":REM M FOR MACHINE!
150 FOR F=1 TO 8
160 B(F,1)=6
170 NEXT F
180 FOR F=1 TO 6
190 FOR G=1 TO 8
200 A$(F,G)="."
210 NEXT G
```

▷

Connect Four

```
220 NEXT F
230 REM **************************
240 REM ACCEPT HUMAN MOVE
250 GOSUB 430
260 PRINT:PRINT "YOUR MOVE..."
270 INPUT A
280 IF A=0 THEN RUN
290 IF A<1 OR A>8 THEN 270
300 L=0
310 IF A$(L+1,A)<>"." OR L=6 THEN 340
320 L=L+1
330 GOTO 310
340 IF L=0 THEN 270
350 A$(L,A)=H$
360 B(A,1)=B(A,1)-1
370 GOSUB 430
380 GOSUB 560
390 GOSUB 430
400 GOTO 260
410 REM **************************
420 REM PRINT BOARD
430 CLS
440 FOR F=1 TO 6
450 FOR G=1 TO 8
460 PRINT A$(F,G);
470 NEXT G
480 PRINT
490 NEXT F
500 PRINT "12345678"
510 PRINT
520 IF FLAG=1 THEN PRINT "I HAVE WON":EN
D
530 RETURN
540 REM **************************
550 REM COMPUTER MOVES
560 PRINT "MY MOVE..."
570 MV=0
580 FOR F=1 TO 8
590 B(F,2)=0
600 NEXT F
610 FOR F=1 TO 8
620 FOR X=-1 TO 1
630 FOR Y=-1 TO 1
640 IF B(F,1)=0 THEN 680
650 IF A$(B(F,1)+X,F+Y)="" OR A$(B(F,1)+
X,F+Y)="." THEN 680
660 IF A$(B(F,1)+X,F+Y)=H$ THEN GOSUB 81
0
670 IF A$(B(F,1)+X,F+Y)=C$ THEN GOSUB 91
0
680 NEXT Y
690 NEXT X
```

```
........
........
..M.o...
..MMMM..
..ooMo..
..oMoo..
12345678

I HAVE WON
```

```
700 NEXT F
710 P=0
720 FOR F=1 TO 8
730 IF B(F,2)>P THEN P=B(F,2):N=F
740 NEXT F
750 A$(B(N,1),N)=C$
760 B(N,1)=B(N,1)-1
770 N=0
780 P=0
790 RETURN
800 REM **************************
810 MV=2
820 M1=MV
830 IF A$(B(F,1)+(X*2),F+(Y*2))=H$ THEN
MV=MV+10
840 IF A$(B(F,1)-X,F-Y)=H$ THEN MV=MV+20

850 IF MV<>M1+10 THEN 870
860 IF A$(B(F,1)+(X*3),F+(Y*3))=H$ THEN
MV=MV+1000
870 B(F,2)=B(F,2)+MV
880 M1=0
890 RETURN
900 REM **************************
910 MV=2
920 M1=MV
930 IF A$(B(F,1)+(X*2),F+(Y*2))=C$ THEN
MV=MV+9
940 IF A$(B(F,1)-X,F-Y)=C$ THEN MV=MV+20

950 IF MV<>M1+9 THEN 970
960 IF A$(B(F,1)+(X*3),F+(Y*3))=C$ THEN
MV=MV+2000:FLAG=1
970 B(F,2)=B(F,2)+MV
980 RETURN
```

Gomoku

YOU'LL FIND GOMUKU an easy game to learn, but one which is almost impossible to win. The computer plays extremely well (if a little *s-l-o-w-l-y*) in this program, which is based on one written by Graham Charlton, the programmer who produced Oz-thello.

You have to try and get five of your pieces (the 'H') in a line in any direction, while the computer is trying to do the same with its pieces (the 'C').

Notes and Ideas –

```
10 REM GOMOKU
20 REM (c) Tim Hartnell,
       Interface Publications, 1986
30 GOSUB 760
40 GOSUB 140
50 GOSUB 250
60 GOSUB 140
70 GOSUB 330
80 GOSUB 140
90 IF L>3 THEN PRINT:PRINT "I WIN!!":END

100 GOTO 50
110 E = A
120 E = E + N: IF A(E)<>Z THEN RETURN
130 K = K + 1:GOTO 120
140 CLS
150 PRINT:PRINT:PRINT
160 PRINT TAB(12);"1 2 3 4 5 6 7 8"
170 FOR A = 1 TO 8:PRINT TAB(8);A;" ";
180 FOR B = 2 TO 9
190 PRINT CHR$(A(A*10 + B));" ";
200 NEXT B
210 PRINT A
220 NEXT A
230 PRINT TAB(12);"1 2 3 4 5 6 7 8"
240 RETURN
250 PRINT:PRINT
260 PRINT "Please enter your move..."
270 INPUT G
280 G = G + 1
290 IF G<12 OR G>89 OR A(G)<>46 THEN 270

300 Z = H
310 A(G) = Z
320 RETURN
330 A = G
340 L = 0
350 FOR X = 1 TO 4:K = 0:N = X(X)
360 GOSUB 110
370 N = - N:GOSUB 110
380 IF K>L THEN L = K
390 NEXT X
400 IF L>3 THEN PRINT:PRINT "You win!!":
END
410 T = 1
420 IF T<>2 THEN Z = C
430 IF T = 2 THEN Z = H
440 G = 0:H1 = 0:L = 0
450 FOR A = 12 TO 89
460 M = 0
470 IF A(A)<>46 THEN 580
480 FOR X = 1 TO 4:K = 0:N = X(X)
490 GOSUB 110
```

▷

Gomoku

```
500 N = - N:GOSUB 110
510 IF K>L THEN H1 = 0:L = K
520 IF L<>K THEN 550
530 IF T=1 AND L<4 OR (T=2 OR T=3) AND L
<2 THEN 550
540 M = M + 1
550 NEXT X
560 IF M<=H1 THEN 580
570 H1 = M:G = A
580 NEXT A
590 IF H1<>0 THEN 660
600 T = T + 1: IF T<>4 THEN 420
610 A = 1
620 G = INT(RND*77) + 13
630 IF A(G) = 46 THEN 660
640 A = A + 1:IF A<100 THEN 620
650 PRINT:PRINT "I concede the game":PRI
NT"to a master!!":END
660 A(G) = C
670 Z = C:A = G:L = 0
680 FOR X = 1 TO 4
690 K = 0
700 N = X(X)
710 GOSUB 110
720 N = -N:GOSUB 110
730 IF K>L THEN L=K
740 NEXT X
750 RETURN
760 CLS
770 DIM A(100),X(4)
780 FOR C = 1 TO 8
790 FOR B = 2 TO 9
800 A(C*10 + B) = 46
810 NEXT B
820 NEXT C
830 FOR Q = 1 TO 4
840 READ Z: X(Q) = Z
850 NEXT Q
860 DATA 1,9,10,11
870 H = ASC("H"):C = ASC("C")
880 PRINT:PRINT "Enter Y if you want the
"
890 PRINT "first move, N if you don't"
900 N = 0
910 N = N + 1
920 A$ = INKEY$
930 IF A$ <> "y" AND A$ <> "Y" AND A$ <>
 "n" AND A$ <> "N" THEN 910
940 RANDOMIZE N
950 CLS
960 IF A$ = "y" OR A$ = "Y" THEN RETURN
970 FOR J = 1 TO INT(RND*12) + 1
980 READ Z
990 NEXT J
1000 A(Z) = C
1010 RETURN
1020 DATA 34,35,44,46,47,54,55,56,57,66
```

```
    1 2 3 4 5 6 7 8
1   . . . . . . . .  1
2   . . . C . C . .  2
3   . . . . . . . .  3
4   . . . . C . . .  4
5   . H C H C . H .  5
6   . . . . H . . .  6
7   . . H . . . . .  7
8   . . . . . . . .  8
    1 2 3 4 5 6 7 8
```

Notes and High Scores –

Draughts

THIS PROGRAM, WHICH I wrote when holidaying in Wales (how's that for country-dropping!), puts up a fair defense for most of the game, then often collapse at the end. You might be able to beef up its end play.

When the game begins, you're at the bottom of the screen playing up, and the computer is at the top playing down. As the program is currently set up, the computer always has the first move. If you want the first move, simply delete line 60. Your pieces are the H's, and the computer's pieces are C's. Your kings are K's, and the computer's kings are $'s.

Notes and Ideas –

```
10 REM DRAUGHTS
20 REM (c) Tim Hartnell,
      Interface Publications, 1986
30 GOSUB 1090
40 REM DELETE LINE 50 FOR HUMAN
50 REM     TO HAVE FIRST MOVE
60 GOTO 100
70 REM *********************************
80 GOSUB 650
90 GOSUB 830
100 GOSUB 650
110 GOSUB 140
120 GOTO 80
130 REM *********************************
140 FOR X = 1 TO 10:S(X) = 0:NEXT X
150 SC = 0:A = 89
160 A = A - 1
170 IF Q(A) <> C AND Q(A) <> CK THEN 290

180 B = 0:IF A < 29 THEN B = 2
190 B = B + 1
200 M = A + N(B)
210 IF M > 88 OR M < 11 THEN 290
220 IF (Q(M)=H OR Q(M)=HK) AND Q(M+N(B))
=E THEN 330
230 IF Q(M)<>E THEN 280
240 IF Q(M-11)=H OR Q(M-11)=HK OR Q(M-9)
=H OR Q(M-9)=HK THEN 280
250 IF Q(M+9)=HK OR Q(M+22)=HK OR Q(M+18
)=HK THEN 280
260 IF Q(M+11)=HK THEN 280
270 IF Q(M+9)<>C OR Q(M+9)<>CK OR Q(M+11
)=C OR Q(M+11)=CK THEN GOSUB 450
280 IF B < 2 OR (Q(A)=CK AND B < 4) THEN
 190
290 IF A > 11 THEN 160
300 FL = 0:IF Q(22) = C OR Q(24) = C OR
Q(26) = C OR Q(28) = C THEN GOSUB 1330
310 IF FL = 1 THEN 620
320 GOTO 470
330 Q(M+N(B)) = Q(A):Q(M) = E:Q(A) = E
340 CO = CO + 1
350 GOSUB 650
360 A = M + N(B)
370 B = 0
380 B = B + 1
390 IF (A+2*N(B)<11 OR A+2*N(B)>88) AND
B < 4 THEN 380
400 M = A + N(B)
410 IF Q(M) = C AND B > 3 THEN RETURN
420 IF (Q(M)=H OR Q(M)=HK) AND Q(M+N(B))
=E THEN 330                              ▷
```

Draughts

```
430 IF B < 2 OR (Q(A) = CK AND B<4) THEN
 380
440 RETURN
450 IF SC < 10 THEN SC = SC + 1
460 S(SC)=100*A + B + 20:RETURN
470 IF SC = 0 THEN 520
480 XC = INT(RND*SC) + 1
490 A = INT(S(XC)/100)
500 M = A + N(S(XC) - 100*A - 20)
510 GOTO 620
520 SC = SC + 1: A = INT(RND*88) + 1
530 IF Q(A) <> C AND Q(A) <> CK THEN 600

540 B = 0
550 B = B + 1
560 M = A + N(B)
570 IF M > 88 OR M < 11 THEN 590
580 IF Q(M) = E THEN 620
590 IF B < 2 OR Q(A) = CK AND B < 4 THEN
 550
600 IF SC < 300 THEN 520
610 PRINT:PRINT "I concede the game":END

620 Q(M) = Q(A):Q(A) = E
630 RETURN
640 REM ********************************
650 CLS:PRINT:PRINT
660 PRINT "       COMPUTER:"CO
670 PRINT "          HUMAN:"HU:PRINT:PRIN
T
680 PRINT "     1 2 3 4 5 6 7 8"
690 FOR F = 80 TO 10 STEP - 10
700 PRINT F/10;" ";
710 FOR G = 1 TO 8:PRINT CHR$(Q(F + G));
" ";:NEXT G
720 PRINT F/10:NEXT F
730 PRINT "     1 2 3 4 5 6 7 8"
740 IF CO = 12 OR HU = 12 THEN 760
750 RETURN
760 IF HU = 12 THEN PRINT "You have won"

770 IF CO = 12 THEN PRINT "I have won"
780 PRINT "Thanks for the game":END
790 REM ********************************
800 REM 99 TO CONCEDE
810 PRINT:PRINT
820 PRINT "Enter your move"
830 PRINT:PRINT
840 PRINT "Enter your move"
850 REM Enter 99 to end game
860 INPUT "From";A
870 IF A = 99 THEN GOTO 780
880 IF Q(A) <> H AND Q(A) <> HK THEN 860
890 INPUT "To";B
900 IF Q(B) <> E THEN 890
910 Q(B) = Q(A):Q(A) = E
920 REM ********************************
930 FOR T = 11 TO 17:IF Q(T) = C THEN Q(
T) = CK
940 NEXT T
950 FOR T = 82 TO 88:IF Q(T) = H THEN Q(
T) = HK
960 NEXT T
970 REM ********************************
980 IF ABS(A - B) < 12  THEN RETURN
990 TY = RND
1000 IF TY < .3 THEN PRINT "Good move":G
OSUB 1400
1010 IF TY > .7 THEN PRINT "Got me!":GOS
UB 1400
1020 HU = HU+1:Q((A + B)/2)=E:GOSUB 650
1030 FOR T = 82 TO 88:IF Q(T) = H THEN Q
(T) = HK
1040 NEXT T
1050 PRINT:INPUT "Can you jump again (Y
or N)";A$
1060 IF A$ <>"y" AND A$ <> "Y" THEN RETU
RN
1070 A = B:GOTO 880
1080 REM ********************************
1090 REM Initialise
1100 CLS
1110 PRINT "Please stand by"
1120 DIM Q(99),N(4),S(10)
1130 H = ASC("H"):HK = ASC("K")
1140 C = ASC("C"):CK = ASC("$")
1150 E = 32:OF = - 99
1160 FOR M = 1 TO 99:Q(M) = OF:NEXT M
1170 FOR M = 1 TO 64
1180 READ D:READ G
1190 Q(D) = G: NEXT M
1200 DATA 81,46,82,67,83,46,84,67,85,46,
86,67,87,46
1210 DATA 88,67,71,67,72,46,73,67,74,46,
75,67,76,46
1220 DATA 77,67,78,46,61,46,62,67,63,46,
64,67
1230 DATA 65,46,66,67,67,46,68,67,51,32,
52,46
1240 DATA 53,32,54,46,55,32,56,46,57,32,
58,46
1250 DATA 41,46,42,32,43,46,44,32,45,46,
46,32
1260 DATA 47,46,48,32,31,72,32,46,33,72,
34,46,35,72
```

Draughts

```
        COMPUTER: 2
           HUMAN: 1


     1 2 3 4 5 6 7 8
  8  . C . C . C . C  8
  7  C .   .   . C .  7
  6  . C . C . C .    6
  5    .   .   . C .  5
  4  . H . H .   .    4
  3  H . C .   . H .  3
  2  .   . H . H . H  2
  1  H .   . H . H .  1
     1 2 3 4 5 6 7 8

Enter your move
From? 24
To? 35
```

```
1270 DATA 36,46,37,72,38,46,21,46,22,72,
23,46,24,72
1280 DATA 25,46,26,72,27,46,28,72,11,72,
12,46,13,72
1290 DATA 14,46,15,72,16,46,17,72,18,46
1300 FOR M = 1 TO 4:READ X:N(M) = X:NEXT
 M
1310 DATA -11, -9, 11, 9
1320 CO = 0:HU = 0:RETURN
1330 IF Q(22)=C AND Q(11)=E THEN A=22:M
= 11:FL = 1:RETURN
1340 IF Q(22)=C AND Q(13)=E THEN A=22:M
= 13:FL = 1:RETURN
1350 IF Q(24)=C AND Q(13)=E THEN A=24:M
= 13:FL = 1:RETURN
1360 IF Q(24)=C AND Q(15)=E THEN A=24:M
= 15:FL = 1:RETURN
1370 IF Q(26)=C AND Q(15)=E THEN A=26:M
= 15:FL = 1:RETURN
1380 IF Q(26)=C AND Q(17)=E THEN A=26:M
= 17:FL = 1:RETURN
1390 RETURN
1400 FOR O = 1 TO 1000:NEXT O:RETURN
```

how
where
when

Modern fishing MAGAZINE
TELLS YOU ALL!

The Your Computer Robot

The YC Robot can follow a series of commands you type in, using a language we invented just for the program, called Robot Control Language (or 'RCL'). You enter the program, then put your commands in the lines 50 to 220, and then run the program. The 'robot' will then carry out your instructions.

In mid-1983, Muse Software of Baltimore, USA, released a superb robot simulation program under the name of Robotwar. This program allows you to pre-program a number of robots, before setting them loose on a computer-screen battlefield to fight it out for victory. Robotwar allows you to program the robots in a language which is essentially English, with a few BASIC commands (such as GOTO and GOSUB) thrown in.

Our program, The Your Computer Robot, is much simpler than Robotwar, yet still produces satisfying, and surprisingly interesting results.

There are twelve commands in RCL, any of which can be abbreviated to the first two letters. The RCL program is included within the overall BASIC program, as a set of up to twelve DATA statements, terminated by a DATA statement which just contains an asterisk. These DATA lines are kept near the beginning of the program. The current line which is being processed appears at the top of the screen as the program is running, so you can see the relevant line and its effect, as it occurs.

Here is the complete vocabulary of RCL:

START (which can be abbreviated to ST) – start again;

PRINTOUT (PR) – stop the robot action, clear the screen, and print out the current situation before continuing with the run;

FORWARD (FO) – this is followed by a single number, and it tells the robot to move forward by the number of 'steps' or 'spaces' indicated by the number which follows the command;

BACK (BA) – this is the opposite, naturally enough, of FORWARD;

```
10 REM The Your Computer Robot
20 GOSUB 1640:REM INITIALIZE
30 GOTO 400
40 REM ******************************
50 REM
60 REM
70 REM
80 REM
90 REM
100 REM
110 REM
120 REM
130 REM
140 REM
150 REM
160 REM
170 REM
180 REM
190 REM
200 REM
210 REM
220 REM
230 DATA "*"
240 REM ******************************
250 REM INT UX,AX
260 UX=INT(UX+.5):AX=INT(AX+.5)
270 RETURN
280 REM ******************************
290 REM           PRINT OUT
300 CLS:REM OR LOCATE 1,1 OR SIMILAR
310 PRINT "STEP"PSN" > ";A$(PSN):PRINT
320 FOR J=1 TO DEPTH
330 FOR K=1 TO BREADTH
340 PRINT Z$(J,K);
350 NEXT K
360 PRINT
370 NEXT J
380 RETURN
390 REM ******************************
400 REM READ PROGRAM
410 COUNT=COUNT+1
420 READ A$(COUNT)
430 IF A$(COUNT)="*" THEN 460
440 IF COUNT<20 THEN 410
450 REM ******************************
460 REM EXECUTE PROGRAM
470 PSN=0:REM PROGRAM STEP NUMBER
480 PSN=PSN+1
490 IF PSN=21 THEN 490:REM END
500 FLAG=0
510 M$=A$(PSN)
520 IF M$="*" THEN 520:REM END
530 N$=LEFT$(M$,2)
```

The Your Computer Robot

TURN (TU) – followed by a number, this command turns the robot through the specified number of degrees (more or less); it starts a run at zero degrees, with zero being considered as facing the top of the screen;
HOME (HO) – returns the robot to the centre of the screen, facing upwards;
CLEAN (CL) – cleans the previous steps away (the action of this command, like the others, will become clear once you use it);
GO – this is followed by two numbers, which are the co-ordinates to which the robot moves without leaving a trail between its old position and the new one;
RANDOM (RA) – this moves the robot to a randomly chosen position on the screen; it acts as a random GO;
REPEAT (RE) – followed by a number, this command allows you to cycle through a section of a program a specified number of times before continuing. This can produce some fascinating effects, as you'll see;
END REPEAT (EN) – terminates the REPEAT cycle. All the RCL commands which lie between REPEAT and END REPEAT will be cycled through the number of times specified;
FACE (FA) – followed by a number, this turns the robot to face an absolute angle, with the top of the screen as zero degrees (in contrast to FACE, the TURN command is relative to the current angle at which the robot is facing);

So — to use the Your Computer Robot, just enter your commands in the lines 50 through to 220 in the program.

Here are some sample programs — For an octogan:

```
GO 11,35
REPEAT 8
FORWARD 4
TURN 45
END REPEAT
PRINTOUT
*
```

```
540 IF N$="ST" THEN 470:REM START AGAIN
550 IF N$="PR" THEN GOSUB 290:REM PRINTO
UT
560 IF N$="FO" THEN FLAG=1
570 IF N$="BA" THEN FLAG=2
580 IF N$="TU" THEN FLAG=3
590 IF N$="HO" THEN FLAG=4
600 IF N$="CL" THEN FLAG=5
610 IF N$="GO" THEN FLAG=6
620 IF N$="RA" THEN FLAG=7
630 IF N$="RE" THEN FLAG=8
640 IF N$="EN" THEN FLAG=9
650 IF N$="FA" THEN FLAG=10
660 ON FLAG GOSUB 690,850,910,1070,1130,
1170,1310,1370,1440,1490
670 GOTO 480
680 REM ******************************
690 REM            FORWARD
700 M$=MID$(M$,4)
710 IF ASC(M$)=87 THEN M$=MID$(M$,6)
720 F$="F"
730 NUM=VAL(M$)
740 FOR E=1 TO NUM
750 IF UX<1 OR UX>DEPTH THEN 790
760 IF AX<1 OR AX>BREADTH THEN 790
770 Z$(UX,AX)=T$
780 REM DELETE THE '*2' AT END OF NEXT
 TWO LINES IF BETTER ON YOUR SYSTEM
790 IF F$="F" THEN UX=UX+UP:AX=AX+AC*2
800 IF F$="B" THEN UX=UX-UP:AX=AX-AC*2
810 GOSUB 250
820 NEXT E
830 RETURN
840 REM ******************************
850 REM              BACK
860 M$=MID$(M$,4)
870 IF ASC(M$)=75 THEN M$=MID$(M$,3)
880 F$="B"
890 GOTO 730
900 REM ******************************
910 REM              TURN
920 M$=MID$(M$,4)
930 IF ASC(M$)=78 THEN M$=MID$(M$,3)
940 NUM=VAL(M$)
950 Y=INT((NUM+17.5)/45)
960 IF Y=0 OR Y=8 THEN RETURN
970 FOR J=1 TO Y
980 IF UP=-1 AND AC=0 THEN AC=1:GOTO 104
0
990 IF UP=0 AND AC=1 THEN UP=1:GOTO 1040

1000 IF UP=1 AND AC=0 THEN AC=-1:GOTO 10
40
```

▷

The Your Computer Robot

To get diamonds:

```
RANDOM
FACE 45
REPEAT 4
FORWARD 2
TURN 90
END REPEAT
PRINTOUT
START AGAIN
*
```

To print out a square:

```
GO 11,35
REPEAT 4
FORWARD 6
TURN 90
END REPEAT
PRINTOUT
*
```

For a random design of octagons:

```
RANDOM
REPEAT 8
FORWARD 2
TURN 45
END REPEAT
PRINTOUT
START AGAIN
*
```

To print out my initials, I wrote this little RCL program:

```
GO 6,10
FACE 90
FORWARD 7
GO 8,26
FORWARD 5
PR
GO 6,16
FACE 180
FORWARD 6
GO 6,26
FORWARD 6
GO 6,34
FORWARD 6
PRINTOUT
*
```

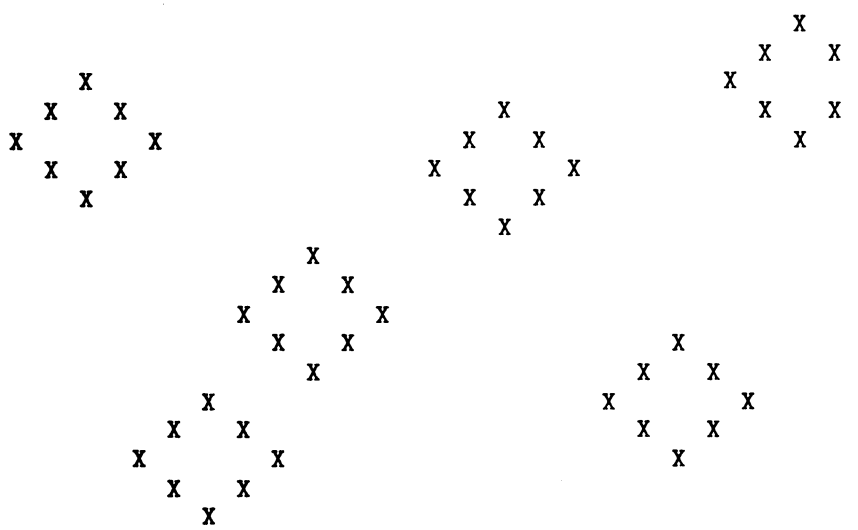
With these examples to get you underway, you're sure to be able to create some pretty interesting designs of your own.

```
1010 IF UP=0 AND AC=-1 THEN UP=-1:GOTO 1
040
1020 IF UP=-1 AND AC=-1 OR UP=1 AND AC=1
 THEN AC=0:GOTO 1040
1030 IF UP=-1 AND AC=1 OR UP=1 AND AC=-1
 THEN UP=0
1040 NEXT J
1050 RETURN
1060 REM ******************************
1070 REM             HOME
1080 AX=INT((BREADTH+.5)/2)
1090 UX=INT((DEPTH+.5)/2)
1100 UP=-1:AC=0:REM FACES UP
1110 RETURN
1120 REM ******************************
1130 REM             CLEAN
1140 GOSUB 1770
1150 RETURN
1160 REM ******************************
1170 REM          GO X,Y
1180 P=0
1190 P=P+1
1200 IF MID$(M$,P,1)="," THEN 1230
1210 IF P<LEN(M$) THEN 1190
1220 RETURN:REM ERROR
1230 UX=VAL(MID$(M$,4,P-1))
1240 AX=VAL(RIGHT$(M$,LEN(M$)-P))
1250 GOSUB 250
1260 IF UX<1 OR UX>DEPTH THEN 1290
1270 IF AC<1 OR AC>BREADTH THEN 1290
1280 Z$(UX,AX)=R$
1290 RETURN
1300 REM ******************************
1310 REM            RANDOM
1320 AX=INT(RND(1)*BREADTH)
1330 UX=INT(RND(1)*DEPTH)
1340 Z$(UX,AX)=R$
1350 RETURN
1360 REM ******************************
1370 REM            REPEAT
1380 M$=MID$(M$,4)
1390 IF ASC(M$)=69 THEN M$=MID$(M$,5)
1400 RECOUNT=VAL(M$)
1410 MARKER=PSN
1420 RETURN
1430 REM ******************************
1440 REM          END REPEAT
1450 RECOUNT=RECOUNT-1
1460 IF RECOUNT>0 THEN PSN=MARKER
1470 RETURN
1480 REM ******************************
1490 REM             FACE
1500 M$=MID$(M$,4)
```

The Your Computer Robot

```
1510 IF ASC(M$)=69 THEN M$=MID$(M$,3)
1520 NUM=VAL(M$)
1530 Y=INT((NUM+17.5)/45)*45
1540 IF Y=0 OR Y=360 THEN UP=-1:AC=0
1550 IF Y=45 THEN UP=-1:AC=1
1560 IF Y=90 THEN UP=0:AC=1
1570 IF Y=135 THEN UP=1:AC=1
1580 IF Y=180 THEN UP=1:AC=0
1590 IF Y=225 THEN UP=1:AC=-1
1600 IF Y=270 THEN UP=0:AC=-1
1610 IF Y=315 THEN UP=-1:AC=-1
1620 RETURN
1630 REM ******************************
1640 REM INITIALIZE
1650 CLS
1660 REM   ADJUST NEXT TWO LINES FOR
         BEST RESULTS ON YOUR SYSTEM
1670 BREADTH=80:REM CHARACTERS ACROSS
1680 DEPTH=24:REM CHARACTERS DOWN
1690 BREADTH=BREADTH-1
1700 DEPTH=DEPTH-3
1710 UP=-1:AC=0:REM STARTS FACING UP
1720 DIM A$(20):REM FOR ROBOT PROGRAM
1730 DIM Z$(DEPTH,BREADTH):REM DISPLAY
1740 T$="X":REM PUT SYMBOL HERE YOU
     WANT TO USE FOR ROBOT'S TRAIL
1750 AX=0:UX=0
1760 REM FILL ARRAY WITH SPACES
1770 FOR J=1 TO DEPTH
1780 FOR K=1 TO BREADTH
1790 Z$(J,K)=" "
1800 NEXT K
1810 NEXT J
1820 RETURN
```

```
STEP 7  > PR
```



Notes and Ideas –

Livin' in the Lodge

They say that in Australia, politicians are considered to be the third worst form of life (just above child molesters and journalists). Most of us feel, from time to time, we could do a better job than those daring to run our lives from Canberra.

Well, here's your chance to prove your political skills. With this program, you move into the Lodge in Canberra to run the country. To retain your popular support (and the number one job in the country), you have to keep Australia together. You need to do your best to improve the standard of living, keep inflation and unemployment down, stimulate private investment, and generally maintain an acceptable growth in the economy, all at the same. You'll soon discover the wisdom of the words of one former occupant of the Lodge: "A Prime Minister's life wasn't meant to be easy".

The population of Australia is around three million when you begin, and unemployment will be hovering around 10%. You'll be asked to make some snap judgements on levels of government spending, the cost of wages, and on your current immigration policy. To take part in this program, you have to be the ACTU, the Prices Surveillance Authority, the New Right, the Industrial Tribunal, and the Department of Immigration and Ethnic Affairs, all at the same time!

You'll soon find that, no matter how good your intentions, it is a very difficult juggling act to control.

```
10 REM LIVIN' IN THE LODGE
20 REM PHILIP COATES
30 REM (c) Interface Publications, 1986
40 GOSUB 1180:REM INITIALIZE
50 REM ****************************
60 REM MAJOR CYCLE
70 P=INT(P+(P*273/ML))
80 GOSUB 180:REM PRINTOUT
90 GOSUB 530:REM CALCULATE
100 REM NOW CHECK END GAME
110 GOSUB 730:REM STANDARD OF LIVING
120 GOSUB 800:REM INFLATION RATE
130 GOSUB 860:REM UNEMPLOYMENT
140 IF GAME=1 THEN CLS:GOTO 910
150 GOTO 70
160 REM ****************************
170 REM PRINTOUT
180 CLS
190 PRINT "PRIME MINISTER ";A$;":"
200 PRINT "YOUR PARTY HAS BEEN IN
          POWER FOR"Y+Z/4"YEARS"
210 PRINT "------------------------------
----"
220 PRINT "-----STATE OF THE NATION-----
----"
230 PRINT "------------------------------
----"
240 PRINT "POPULATION"P
250 PRINT "NO. UNEMPLOYED"INT(U)"  "INT(
100*U/P)"%"
260 PRINT "CURRENT WAGES $"WO" INFLATION
"INT(IP)"%"
270 PRINT "GOVT. EXPENDITURE LAST QTR. $
M"GE
280 PRINT "UNEMPLOYMENT COST $M"INT(10*G
U)/10
290 PRINT "INCOME FROM TAXES $M"INT(GI*1
0)/10
300 PRINT "BUDGET SURPLUS(+)/DEFICIT(-)
$M"INT(BD*10)/10
310 PRINT "GROSS DOMESTIC PRODUCT $M"INT
(GDP*10)/10
320 IF Y+Z/4>.5 THEN PRINT "CHANGE IN LI
VING STANDARD"INT((2*((RGDP/AGDP)*100)-1
00)/3)"%"
330 PRINT "------------------------------
----"
340 PRINT "PUBLIC INVESTMENT        $M"IN
T(IV*10)/10
350 PRINT "------------------------------
----"
360 PRINT "OK, PRIME MINISTER ";A$;"..."
```

Livin' in the Lodge

```
370 INPUT "ENTER GOVERNMENT SPENDING $M"
;GE
380 INPUT "ENTER COST OF WAGES $M";WN
390 PRINT "IS YOUR GOVERNMENT IN FAVOUR
OF"
400 PRINT "IMMIGRATION THIS QUARTER (Y/N
)?"
410 X$=INKEY$
420 IF X$<>"Y" AND X$<>"N" THEN 410
430 PRINT TAB(20);"OK...";X$
440 FOR H=1 TO 1000:NEXT H
450 IF X$<>"Y" THEN RETURN
460 PRINT "HOW MANY IMMIGRANTS WILL YOU
ALLOW                INTO AUSTRALIA?"
470 INPUT M
480 IF M<0 THEN 470
490 P=P+M
500 RETURN
510 REM ******************************
520 REM CALCULATIONS
530 CN=CN+(CN*IP/100)
540 U=P*(GE+IV)/(CN*10)+P*(IP/1000)
550 GU=U*WN/ML:REM UNEMPLOYMENT COST
560 GI=(((P-U)*WN*.4)/ML):REM INCOME
                          FROM TAXES
570 BD=BD+GI-GU-GE:REM BUDGET DEFICIT
580 AGDP=AGDP*(1+(IP/100))
590 GDP=GE+IV+((P-U)*WN/ML)
600 RGDP=GDP*440/AGDP

PRIME MINISTER HARTNELL:
YOUR PARTY HAS BEEN IN
POWER FOR .5 YEARS
---------------------------------
-----STATE OF THE NATION---------
---------------------------------
POPULATION 3001638
NO. UNEMPLOYED 207954     6 %
CURRENT WAGES $ 4  INFLATION 6 %
GOVT. EXPENDITURE LAST QTR. $M 3
UNEMPLOYMENT COST $M .8
INCOME FROM TAXES $M 4.4
BUDGET SURPLUS(+)/DEFICIT(-) $M .6
GROSS DOMESTIC PRODUCT $M 250.1
---------------------------------
PUBLIC INVESTMENT        $M 594.9
---------------------------------
OK, PRIME MINISTER HARTNELL...
ENTER GOVERNMENT SPENDING $M? 7
ENTER COST OF WAGES $M? 12
IS YOUR GOVERNMENT IN FAVOUR OF
IMMIGRATION THIS QUARTER (Y/N)?
```

```
610 IP=((GE+IV)/CN*.1+(WN/WO)/100)*100
620 IV=(CN*67)/(IP*IP)
630 WO=WN
640 Z=Z+1:IF Z>4 THEN Z=1:Y=Y+1
650 RETURN
660 REM ******************************
670 REM CHECK BUDGET DEFICIT
680 IF BD>-1000 THEN RETURN
690 GAME=1
700 FLAG=1
710 RETURN
720 REM ******************************
730 REM CHECK STANDARD OF LIVING
740 IF Y<.75 THEN RETURN
750 IF INT((2*((RGDP/AGDP)*100)-100)/3)>
-15 THEN RETURN
760 GAME=1
770 FLAG=2
780 RETURN
790 REM ******************************
800 REM CHECK INFLATION RATE
810 IF IP<15 THEN RETURN
820 GAME=1
830 FLAG=3
840 RETURN
850 REM ******************************
860 REM CHECK UNEMPLOYMENT
870 IF INT(U*100/P)<15 THEN RETURN
880 GAME=1

PRIME MINISTER HARTNELL, YOUR
GOVERNMENT'S POOR ECONOMIC
PERFORMANCE HAS LED TO AN UNACCEPTABLE
RISE IN UNEMPLOYMENT
          AMONG OTHER THINGS...
---------------------------------
THE LACK OF CONFIDENCE IN YOUR
GOVERNMENT IS SO BAD THERE ARE
CALLS FOR YOU TO RESIGN...YOU
DECIDE TO CALL FOR AN ELECTION
AND THE OPPOSITION WINS...
---------------------------------
YOU WERE PRIME MINISTER FOR 1.75 YEARS
DURING YOUR TERM OF OFFICE, THE
POPULATION ROSE BY 5638
THE UNEMPLOYMENT RATE BECAME 15.8 %
AND THE INFLATION RATE BECAME 18.2 %
STANDARD OF LIVING CHANGED BY 43 %
AND THE BUDGET SURPLUS/DEFICIT
WAS $M-22.9
```

▷

Livin' in the Lodge

```
890 FLAG=4
900 RETURN
910 REM ****************************
920 REM END OF THE GAME
930 PRINT "PRIME MINISTER ";A$;", YOUR"
940 PRINT "GOVERNMENT'S POOR ECONOMIC"
950 PRINT "PERFORMANCE HAS LED TO AN UNA
CCEPTABLE"
960 IF FLAG=1 THEN PRINT "BUDGET DEFICIT
"
970 IF FLAG=2 THEN PRINT "DROP IN THE ST
ANDARD OF LIVING"
980 IF FLAG=3 THEN PRINT "RISE IN THE IN
FLATION RATE"
990 IF FLAG=4 THEN PRINT "RISE IN UNEMPL
OYMENT"
1000 PRINT "          AMONG OTHER THINGS.
1010 PRINT "-----------------------------
-----"
1020 PRINT "THE LACK OF CONFIDENCE IN YO
UR"
1030 PRINT "GOVERNMENT IS SO BAD THERE A
RE"
1040 PRINT "CALLS FOR YOU TO RESIGN...YO
U"
1050 PRINT "DECIDE TO CALL FOR AN ELECTI
ON"
1060 PRINT "AND THE OPPOSITION WINS..."
1070 FOR H=1 TO 1000:NEXT H
1080 PRINT "-----------------------------
-----"
1090 PRINT "YOU WERE PRIME MINISTER FOR"
Y+(Z*.25)"YEARS"
1100 PRINT "DURING YOUR TERM OF OFFICE,
THE"
1110 PRINT "POPULATION ROSE BY"P-3*ML
1120 PRINT "THE UNEMPLOYMENT RATE BECAME
"INT(U*1000/P)/10"%"
1130 PRINT "AND THE INFLATION RATE BECAM
E"INT(10*IP)/10"%"
1140 PRINT "STANDARD OF LIVING CHANGED B
Y"INT((2*((RGDP/AGDP)*100)-100)/3)"%"
1150 PRINT "AND THE BUDGET SURPLUS/DEFIC
IT          WAS $M"INT(10*BD)/10
1160 END
1170 REM ****************************
1180 REM INITIALIZATION
1190 CLS
1200 RANDOMIZE
1210 CLS
1220 ML=1000*1000
1230 P=3*ML:REM POPULATION
1240 U=P/10:REM UNEMPLOYMENT
1250 IV=236:REM INVESTMENT
1260 GE=118:REM GOVERNMENT EXPENDITURE
1270 GU=0:REM COST OF UNEMPLOYMENT
1280 GI=0:REM INCOME FROM TAXES
1290 WN=100:REM NEW WAGES
1300 WO=100:REM OLD WAGES
1310 IP=5:REM INFLATION PERCENT
1320 GDP=440:REM GROSS DOMESTIC PRODUCT
1330 AGDP=440:REM BASE YEAR GDP
1340 RGDP=440:REM REAL GDP
1350 CN=354:REM ECONOMIC CONSTANT
     (USED THROUGHOUT SIMULATION)
1360 Z=1:GAME=0:FLAG=0
1370 Y=0:REM YEAR
1380 PRINT "ENTER YOUR LAST NAME"
1390 INPUT A$
1400 RETURN
```

Notes and Ideas –

MUSIC SOUND RECORDING STAGE LIGHTING

SONICS

Taking you behind the scenes of the exciting world of today's music making.

THE MAGAZINE FOR MUSIC-MAKERS

Musicians
Home Studio Fanatics
Road Crews
Recording Engineers
Lighting People
Managers
Promoters
Producers

MUSIC SOUND RECORDING STAGE LIGHTING

SONICS

THE MAGAZINE FOR MUSIC-MAKERS

MUSIC SOUND RECORDING STAGE LIGHTING

SONICS

The latest instruments, the latest techniques, reviews, news...

THE MAGAZINE FOR MUSIC-MAKERS

The Doctor is In

You probably know about the famous ELIZA program, which imitates the action of a particularly dumb psychiatrist. Now you can sample it in action, with our program DOCTOR. This is the third version of ELIZA I've written, and — as far as I can ascertain — is more comprehensive than any other published version of the program.

Here's a sample conversation with the Doctor:

```
THE DOCTOR IS IN . . . PLEASE STAND BY

WELCOME TO ANOTHER SESSION WITH
THE DOCTOR

HELLO . . .

>? HI THERE DOC

HI TO YOU . . . RELAX NOW, AND LET'S
TALK ABOUT YOUR SITUATION

>? I HAVE A SERIOUS PROBLEM

HOW CAN I HELP YOU WITH A SERIOUS
PROBLEM

>? IT IS TO DO WITH MY MAD TEACHER

ARE YOU CERTAIN THAT IT'S TO DO
WITH YOUR MAD TEACHER

>? YES I AM VERY CERTAIN

YOU'RE PRETTY POSITIVE

>? IT COMES FROM WRESTLING WITH IT
DAY AND NIGHT

EARLIER YOU MENTIONED YOUR MAD
TEACHER TELL ME MORE ABOUT THAT

>? IT STARTED WHEN I WAS TEN YEARS
OLD

THAT'S VERY INTERESTING
```

```
10 REM DOCTOR
20 REM (C) TIM HARTNELL, 1986
30 REM INTERFACE PUBLICATIONS
40 GOSUB 1160:REM INITIALISE
50 PRINT:PRINT "-----------------------
---------":PRINT
60 PRINT ">";:INPUT X$
70 IF X$="" THEN END:REM QUIT BY JUST PR
ESSING 'RETURN'
80 PRINT
90 IF X$=Z$ THEN PRINT "PLEASE DON'T REP
EAT YOURSELF":GOTO 50
100 Z$=X$
110 IF LEFT$(X$,7)="GOODBYE" THEN PRINT
"OK, SEE YOU AGAIN SOMETIME":END
120 REM ** LOOK FOR TRIGGER PHRASES AT S
TART OF INPUT **
130 L=0
140 L=L+1
150 LN=LEN(C$(L))
160 IF LEFT$(X$,LN)=C$(L) THEN 380:REM T
RIGGER FOUND
170 IF L<K THEN 140
180 REM ** PROGRAM GETS HERE IF NO TRIGG
ER PHRASE FOUND AT START OF X$ **
190 REM ** NOW LOOK FOR TRIGGER WORDS WI
THIN INPUT **
200 X$=" "+X$+" "
210 M=LEN(X$)
220 L=0
230 L=L+1
240 IF L=M-1 THEN 820:REM NO TRIGGER FOU
ND
250 IF MID$(X$,L,1)=" " THEN 270
260 GOTO 230
270 X=L+1
280 Y=0
290 Y=Y+1
300 IF MID$(X$,(X+Y),1)=" " THEN Q$=MID$
(X$,X,Y):GOTO 320
310 GOTO 290
320 N=0
330 N=N+1
340 IF Q$=C$(N) THEN 730:REM TRIGGER WOR
D FOUND
350 IF N<K THEN 330
360 GOTO 230
370 REM ************************
380 REM TRIGGER PHRASE FOUND AT START OF
 INPUT
390 T=INT(RND(1)*3)+1
400 IF T=1 THEN G$=D$(L)
410 IF T=2 THEN G$=E$(L)
```

The Doctor is In

>? I WANT SOME ASSISTANCE WITH MY FEARS

WHAT WOULD IT MEAN TO YOU IF YOU GOT SOME ASSISTANCE WITH YOUR FEARS

>? I THINK IT WOULD MAKE ME BRAVER

DO YOU DOUBT IT WOULD MAKE YOU BRAVER

>? I ALWAYS WANT TO RUN AWAY

ISN'T 'ALWAYS' A LITTLE STRONG?

>? I GUESS IT MIGHT BE

WHY DON'T WE GO BACK AND DISCUSS YOUR FEARS A LITTLE MORE?

```
420 IF T=3 THEN G$=F$(L)
430 REM ** CHECK TO SEE IF ENDS IN ASTER
ISK, IF SO NEEDS PART OF INPUT ADDED
440 FLAG=0
450 IF RIGHT$(G$,1)="*" THEN FLAG=1:G$=L
EFT$(G$,(LEN(G$)-1))
460 PRINT G$;" ";
470 IF FLAG=0 THEN 50:REM NO NEED FOR AD
DED MATERIAL
480 REM ** NOW USE BALANCE OF INPUT **
490 X$=" "+MID$(X$,LN+2,LEN(X$))+" "
500 REM ********************
510 REM ** CONJUGATION CHANGES **
520 REM ** ALSO LOOK FOR 'MY' TO TRIGGER
 'MYFLAG'(K$) **
530 LN=LEN(X$)
540 M=0
550 M=M+1
560 IF M=LN THEN 50
570 IF MID$(X$,M,1)=" " THEN 590
580 GOTO 550
590 X=M+1
600 Y=0
610 Y=Y+1
620 IF MID$(X$,(X+Y),1)=" " THEN Q$=MID$
(X$,X,Y):GOTO 650
630 IF X+Y>250 THEN 550
640 GOTO 610
650 MN=0
660 MN=MN+1
670 IF Q$="MY" AND K$="" THEN K$=MID$(X$
,X+3,LEN(X$)-4):K$=LEFT$(K$,LEN(K$)-1)
680 IF Q$=A$(MN) THEN PRINT B$(MN);" ";:
GOTO 550
690 IF MN<KK THEN 660
700 PRINT Q$;" ";
710 GOTO 550
720 REM ********************
730 REM TRIGGER WORDS FOUND
740 T=INT(RND(1)*3)+1
750 Q$=""
760 IF T=1 THEN Q$=D$(N)
770 IF T=2 THEN Q$=E$(N)
780 IF T=3 THEN Q$=F$(N)
790 IF RIGHT$(Q$,1)<>"*" THEN PRINT Q$:G
OTO 50
800 REM ** FALLS THROUGH TO NEXT SECTION
 IF TRIGGER WORD JUDGED UNSUITABLE **
810 REM ***************************
820 REM RANDOM REPLIES/NO TRIGGER
830 IF K$<>"" THEN 1030:REM 'MYFLAG' IS
NOT EMPTY, SO GO THERE
840 T=INT(RND(1)*8)+1
```

▷

The Doctor is In

```
850 ON T GOSUB 870,890,910,930,950,970,9
90,1010
860 GOTO 50
870 PRINT "WHAT DOES THAT SUGGEST TO YOU
?"
880 RETURN
890 PRINT "I'M NOT SURE I UNDERSTAND THA
T FULLY"
900 RETURN
910 PRINT "PLEASE ELABORATE ON THAT"
920 RETURN
930 PRINT "THAT'S VERY INTERESTING"
940 RETURN
950 PRINT "WELL...PLEASE CONTINUE..."
960 RETURN
970 PRINT "WHY?"
980 RETURN
990 PRINT "AND THEN?"
1000 RETURN
1010 PRINT "I SEE...PLEASE TELL ME MORE
ON THAT"
1020 RETURN
1030 REM ** USE 'MYFLAG' **
1040 T=INT(RND(1)*8)+1
1050 IF T=1 THEN PRINT "TELL ME MORE ABO
UT YOUR ";K$
1060 IF T=2 THEN PRINT "EARLIER YOU MENT
IONED YOUR ";K$:PRINT "TELL ME A BIT MOR
E ABOUT THAT"
1070 IF T=3 THEN PRINT "DOES THAT HAVE A
NYTHING TO DO":PRINT "WITH YOUR ";K$;"?"

1080 IF T=4 THEN PRINT "IS THERE A LINK
THERE WITH":PRINT "YOUR ";K$;"?"
1090 IF T=5 THEN PRINT "WHY DON'T WE GO
BACK AND DISCUSS":PRINT "YOUR ";K$;" A L
ITTLE MORE?"
1100 IF T=6 THEN PRINT "DOES ANY CONNECT
ION BETWEEN THAT AND":PRINT "YOUR ";K$;"
 SUGGEST ITSELF?"
1110 IF T=7 THEN PRINT "WOULD YOU PREFER
 TO TALK":PRINT "ABOUT YOUR ";K$;"?"
1120 IF T=8 THEN PRINT "I THINK PERHAPS
WORRIES ABOUT YOUR":PRINT K$;" ARE BOTHE
RING YOU"
1130 IF RND(1)>.7 THEN K$=""
1140 GOTO 50
1150 REM ***************
1160 REM INITIALISATION
1170 RANDOMIZE VAL(RIGHT$(TIME$,2))
1180 CLS
1190 DEFINT A-Z
1200 DIM A$(14),B$(14):REM CONJUGATIONS
1210 DIM C$(45),D$(45),E$(45),F$(45):REM
 TRIGGERS WORDS AND REPLIES
1220 Z$="":REM TO STOP REPETITIONS
1230 K$="":REM 'MYFLAG'
1240 PRINT:PRINT
1250 PRINT "THE DOCTOR IS IN...PLEASE ST
AND BY"
1260 KK=0
1270 KK=KK+1
1280 READ A$(KK),B$(KK)
1290 IF B$(KK)="*" THEN 1310
1300 GOTO 1270
1310 K=0
1320 K=K+1
1330 READ C$(K),D$(K),E$(K),F$(K)
1340 IF F$(K)="*" THEN 1360
1350 GOTO 1320
1360 CLS
1370 PRINT "WELCOME TO ANOTHER SESSION"
1380 PRINT "WITH THE DOCTOR....."
1390 PRINT
1400 PRINT "HELLO..."
1410 RETURN
1420 REM ****
1430 REM DATA
1440 REM ** CONJUGATIONS **
1450 DATA AM,ARE,WAS,WERE,I,YOU,MY,YOUR
1460 DATA "YOU'VE","I'VE",YOUR,MY,ARE,AM

1470 DATA "YOU'RE","I AM",YOURS,MINE,YOU
,ME,ME,YOU,*,*
1480 REM * TRIGGER WORDS/REPLY PHRASES *
1490 DATA "I NEED"
1500 DATA "WHY DO YOU NEED*"
1510 DATA "WOULD IT REALLY BE HELPFUL IF
 YOU       GOT*"
1520 DATA "ARE YOU SURE YOU NEED*"
1530 DATA "WHY DON'T YOU"
1540 DATA "DO YOU REALLY THINK I DON'T*"

1550 DATA "PERHAPS EVENTUALLY I WILL*"
1560 DATA "DO YOU REALLY WANT ME TO*"
1570 DATA "WHY CAN'T I"
1580 DATA "DO YOU THINK YOU SHOULD BE AB
LE         TO*"
1590 DATA "WHY CAN'T YOU*"
1600 DATA "PERHAPS YOU HAVEN'T TRIED HAR
D ENOUGH"
1610 DATA "ARE YOU"
1620 DATA "WHY ARE YOU INTERESTED IN WHE
THER I AM  OR NOT*"
1630 DATA "WOULD YOU PREFER IT IF I WERE
           NOT*"
```

The Doctor is In

```
1640 DATA "PERHAPS YOU SOMETIMES DREAM I
          AM*"
1650 DATA "I CAN'T"
1660 DATA "HOW DO YOU KNOW YOU CAN'T*"
1670 DATA "HAVE YOU TRIED?"
1680 DATA "PERHAPS, NOW, YOU CAN*"
1690 DATA "I AM"
1700 DATA "DID YOU COME TO ME BECAUSE YO
U         ARE*"
1710 DATA "HOW LONG HAVE YOU BEEN*
1720 DATA "DO YOU THINK IT'S ABSOLUTELY
NORMAL    TO BE*"
1730 DATA "I'M"
1740 DATA "DO YOU ENJOY BEING*"
1750 DATA "WHY TELL ME YOU'RE*"
1760 DATA "WHY ARE YOU*"
1770 DATA "I WANT"
1780 DATA "WHAT WOULD IT MEAN TO YOU IF
YOU       GOT*"
1790 DATA "WHY DO YOU WANT*"
1800 DATA "WHAT WOULD IT ADD TO YOUR LIF
E IF      YOU GOT*"
1810 DATA "WHAT"
1820 DATA "WHY DO YOU ASK?"
1830 DATA "HOW WOULD AN ANSWER TO THAT H
ELP YOU?"
1840 DATA "WHAT DO YOU THINK?"
1850 DATA "HOW"
1860 DATA "HOW WOULD YOU SOLVE THAT?"
1870 DATA "IT WOULD BE BEST TO ANSWER TH
AT        FOR YOURSELF"
1880 DATA "WHAT IS IT YOU'RE REALLY ASKI
NG?"
1890 DATA "WHO"
1900 DATA "DO YOU OFTEN THINK ABOUT SUCH
 QUESTIONS"
1910 DATA "WHAT ANSWER WOULD PUT YOUR MI
ND AT REST"
1920 DATA "WHO DO YOU THINK*"
1930 DATA "WHERE"
1940 DATA "THAT'S A PRETTY SILLY QUESTIO
N"
1950 DATA "DO YOU REALLY NEED TO KNOW WH
ERE*"
1960 DATA "WHAT WOULD IT MEAN TO YOU IF
I TOLD     YOU WHERE*"
1970 DATA "WHEN"
1980 DATA "HOW SHOULD I KNOW WHEN*"
1990 DATA "THE TIME SHOULD NOT BE DISCUS
SED HERE"
2000 DATA "THINGS HAVE A HABIT OF HAPPEN
ING AT    MORE OR LESS THE RIGHT TIME"
2010 DATA "WHY"
2020 DATA "WHY DON'T YOU TELL ME THE REA
SON       WHY*"
2030 DATA "WHAT HAVE YOU TOLD ME WHICH W
OULD ALLOW ME TO TELL YOU WHY*"
2040 DATA "DO YOU REALLY NEED TO KNOW WH
Y*"
2050 DATA "BECAUSE"
2060 DATA "IS THAT THE REAL REASON?"
2070 DATA "WHAT OTHER REASONS COME TO MI
ND?"
2080 DATA "WHAT ELSE DOES THAT EXPLAIN?"

2090 DATA "SORRY"
2100 DATA "IN WHAT OTHER CIRCUMSTANCES D
O YOU     APOLOGIZE?"
2110 DATA "THERE ARE MANY TIMES WHEN NO
APOLOGY   IS NEEDED"
2120 DATA "WHAT FEELINGS DO YOU HAVE WHE
N YOU     APOLOGIZE?"
2130 DATA "HELLO"
2140 DATA "HELLO...IT'S GOOD TO SEE YOU"
2150 DATA "HELLO TO YOU...I'M GLAD YOU C
OULD      DROP BY TODAY"
2160 DATA "HOW ARE YOU...I'M LOOKING FOR
WARD TO   ANOTHER CHAT WITH YOU"
2170 DATA "HI"
2180 DATA "HI THERE...I'M GLAD TO SEE YO
U HERE    TODAY"
2190 DATA "HI. I'M GLAD YOU'VE DROPPED B
Y...WE'VE GOT LOTS OF TIME TO CHAT"
2200 DATA "HI TO YOU...RELAX NOW, AND LE
T'S TALK  ABOUT YOUR SITUATION"
2210 DATA "MAYBE"
2220 DATA "YOU SEEM A LITTLE HESITANT"
2230 DATA "THAT'S PRETTY INDECISIVE"
2240 DATA "IN WHAT OTHER SITUATIONS DO Y
OU SHOW   SUCH A TENTATIVE APPROACH?"
2250 DATA "NO"
2260 DATA "WHY ARE YOU BEING SO NEGATIVE
 ABOUT IT?"
2270 DATA "ARE YOU SAYING THAT JUST TO B
E NEGATIVE"
2280 DATA "THAT'S PRETTY FORCEFUL. WHAT
DOES       IT SUGGEST TO YOU?"
2290 DATA "ALWAYS"
2300 DATA "PLEASE GIVE ME A SPECIFIC EXA
MPLE"
2310 DATA "ISN'T 'ALWAYS' A LITTLE STRON
G?"
2320 DATA "WHEN?"
2330 DATA "I THINK"
2340 DATA "DO YOU DOUBT*"
2350 DATA "DO YOU REALLY THINK SO?"  ▷
```

The Doctor is In

```
2360 DATA "BUT YOU ARE NOT SURE*"
2370 DATA "FRIEND"
2380 DATA "WHY DO YOU BRING UP THE SUBJE
CT          OF FRIENDS?"
2390 DATA "WHAT IS YOUR BEST MEMORY OF A
 FRIEND?"
2400 DATA "PLEASE TELL ME MORE ABOUT YOU
R           FRIENDSHIP..."
2410 DATA "FRIENDS"
2420 DATA "IN WHAT WAY DO YOUR FRIENDS'
REACTIONS   BOTHER YOU?"
2430 DATA "WHAT MADE YOU START TO TALK A
BOUT        FRIENDS JUST NOW?"
2440 DATA "IN WHAT WAY DO YOUR FRIENDS I
MPOSE       ON YOU?"
2450 DATA "YES"
2460 DATA "WHAT LIES BEHIND YOUR CERTAIN
TY?"
2470 DATA "YOU'RE PRETTY POSITIVE"
2480 DATA "YOU SEEM VERY CERTAIN ABOUT I
T"
2490 DATA "COMPUTER"
2500 DATA "WHAT FEELINGS DO YOU GET, SIT
TING THERE TALKING TO ME LIKE THIS?"
2510 DATA "ARE YOU THINKING ABOUT ME IN
PARTICULAR"
2520 DATA "WHAT ASPECT OF COMPUTERS INTE
RESTS       YOU THE MOST?"
2530 DATA "IS IT"
2540 DATA "DO YOU THINK IT IS*"
2550 DATA "IN WHAT CIRCUMSTANCES WOULD I
T*"
2560 DATA "IT COULD WELL BE THAT*"
2570 DATA "IT IS"
2580 DATA "WHAT DEGREE OF CERTAINTY WOUL
D YOU       PLACE ON IT BEING*"
2590 DATA "ARE YOU CERTAIN THAT IT'S*"
2600 DATA "WHAT EMOTIONS WOULD YOU FEEL
IF I TOLD   YOU THAT IT PROBABLY ISN'T*"
2610 DATA "CAN YOU"
2620 DATA "WHAT MAKES YOU THINK I CAN'T*
"
2630 DATA "DON'T YOU THINK THAT I CAN*"
2640 DATA "PERHAPS YOU WOULD LIKE TO BE
ABLE TO*"
2650 DATA "CAN I"
2660 DATA "PERHAPS YOU DON'T WANT TO*"
2670 DATA "DO YOU WANT TO BE ABLE TO*"
2680 DATA "I DOUBT IT"
2690 DATA "YOU ARE"
2700 DATA "WHY DO YOU THINK I AM*"
2710 DATA "DOES IT PLEASE YOU TO BELIEVE
            I AM*"
2720 DATA "PERHAPS YOU WOULD LIKE TO BE*
"
2730 DATA "YOU'RE"
2740 DATA "WHY DO YOU THINK I AM*"
2750 DATA "DOES IT PLEASE YOU TO BELIEVE
            I AM*"
2760 DATA "WHY DO YOU SAY I'M*"
2770 DATA "I DON'T"
2780 DATA "DON'T YOU REALLY*"
2790 DATA "WHY DON'T YOU*"
2800 DATA "DO YOU WANT TO BE ABLE TO*"
2810 DATA "I FEEL"
2820 DATA "TELL ME MORE ABOUT SUCH FEELI
NGS"
2830 DATA "DO YOU OFTEN FEEL*"
2840 DATA "DO YOU ENJOY FEELING*"
2850 DATA "FEEL"
2860 DATA "LET'S EXPLORE THAT STATEMENT
A BIT"
2870 DATA "DO YOU OFTEN FEEL LIKE THAT?"

2880 DATA "WHAT EMOTIONS DO SUCH FEELING
S           STIR UP IN YOU?"
2890 DATA "I HAVE"
2900 DATA "WHY TELL ME THAT YOU'VE*"
2910 DATA "IT'S OBVIOUS TO ME THAT YOU H
AVE*"
2920 DATA "HOW CAN I HELP YOU WITH*"
2930 DATA "I WOULD"
2940 DATA "COULD YOU EXPLAIN WHY YOU
            WOULD*"
2950 DATA "WHO ELSE HAVE YOU TOLD YOU
            WOULD*"
2960 DATA "HOW SURE ARE YOU THAT YOU WOU
LD*"
2970 DATA "IS THERE"
2980 DATA "OF COURSE THERE IS*"
2990 DATA "IT'S LIKELY THAT THERE IS*"
3000 DATA "WOULD YOU LIKE THERE TO BE*"
3010 DATA "MY"
3020 DATA "YOUR*"
3030 DATA "I SEE, YOUR*"
3040 DATA "WHAT DOES IT MEAN TO YOU, THA
T YOUR*"
3050 DATA "YOU"
3060 DATA "THIS SESSION IS TO HELP YOU..
NOT TO      DISCUSS ME!"
3070 DATA "WHAT PROMPTED YOU TO SAY THAT
 ABOUT ME?"
3080 DATA "REMEMBER, I'M TAKING NOTES ON
 ALL THIS   TO SOLVE YOUR SITUATION"
3090 DATA *,*,*,*
```

The Celtic Tarot

Once you've sorted yourself out with the help of the Doctor, you can use our next program, The Celtic Tarot, to see what the future has in store.

There is no need for you to learn what each Tarot card signifies in order to use this program. Of the many ways of using and interpreting the Tarot, I've chosen the method called 'The Celtic Cross'. According to the book Predicting the Future, by the Diagram Group, the "Celtic Cross is probably the most useful and versatile of all tarot spreads".

To use it, you just enter a question, such as WOULD IT BE WISE TO CONSIDER BUYING A NEW WIND SURFER, and the program will deal some cards, and comment on them, in light of your question.

```
ENTER YOUR QUESTION OR CONCERN NOW
AND I WILL USE THE CELTIC CROSS SPREAD
IN AN ATTEMPT TO GIVE SOME GUIDANCE...

? WOULD IT BE WISE TO ATTEMPT TO MAKE A
  MILLION DOLLARS DURING 1987
```

```
10 REM THE CELTIC TAROT
20 REM (C) TIM HARTNELL
30 REM INTERFACE PUBLICATIONS, 1986
40 GOSUB 400:REM INITIALISE
50 GOSUB 270:REM ENTER QUESTION
60 GOSUB 550
70 PRINT R$;"?":PRINT
80 PRINT TAB(16);"... LET ME SEE..."
90 GOSUB 550:GOSUB 550
100 REM *******
110 REM PREDICT
120 FOR J=1 TO 10
130 GOSUB 530:REM DELAY/SPACE OUT
140 PRINT "*******************************
**********"
150 PRINT A$(J)
160 GOSUB 550
170 X=INT(RND(1)*22):IF H(X)=1 THEN 170
180 H(X)=1
190 PRINT TAB(13);"-----------"
200 PRINT B$(X)
210 PRINT "*******************************
**********"
220 GOSUB 550
230 NEXT J
240 GOSUB 530
250 END
260 REM **************
270 REM ENTER QUESTION
280 GOSUB 530
290 PRINT "ENTER YOUR QUESTION OR CONCER
N NOW"
300 PRINT "AND I WILL USE THE CELTIC CRO
SS SPREAD"
310 PRINT "IN AN ATTEMPT TO GIVE SOME GU
IDANCE..."
320 GOSUB 530
330 INPUT R$
340 GOSUB 530
350 PRINT TAB(4);"PLEASE STAND BY...."
360 GOSUB 550
370 CLS
380 RETURN
390 REM **********
400 REM INITIALISE
410 CLS
420 RANDOMIZE VAL(RIGHT$(TIME$,2))
430 DIM A$(10),B$(21),H(21)
440 FOR J=1 TO 10
450 READ A$(J)
460 NEXT J
470 FOR J=0 TO 21
480 H(J)=0                    ▷
```

The Celtic Tarot

```
WOULD IT BE WISE TO ATTEMPT TO MAKE A
MILLION DOLLARS DURING 1987?

                ... LET ME SEE...


****************************************
THIS IS WHERE YOU STAND NOW...
            ----------
THE EMPRESS: A STABLE SITUATION, GOOD
FORTUNE...
****************************************
THIS CARD IS FOR THE NEAR FUTURE...
            ----------
THE TOWER: UNFORTUNATE INDICATIONS,
REGROWTH CAN BE EXPECTED..
****************************************

490 READ B$(J)
500 NEXT J
510 RETURN
520 REM ***************
530 REM DELAY/SPACE OUT
540 PRINT:PRINT
550 FOR Z=1 TO 1000:NEXT Z
560 RETURN
570 REM *****************
580 REM INTRODUCTORY DATA
590 DATA "THIS IS WHERE YOU STAND NOW...
"
600 DATA "THIS CARD IS FOR THE NEAR FUTU
RE..."
610 DATA "AND THIS ONE IS WHAT YOU MIGHT
 DO..."
620 DATA "THIS IS SOMETHING IN THE PAST
THAT IS   RELEVANT TO YOUR QUESTION..."
630 DATA "THIS CARD RELATES TO A MORE RE
CENT PAST EVENT..."
640 DATA "NOW, THIS CARD INDICATES YOUR
POSITION  IN SIX MONTHS OR SO..."
650 DATA "IN YOUR LIFE OR WORK, THIS MOS
T CLOSELY INFLUENCES YOU..."
660 DATA "THIS CARD REPRESENTS SOCIAL IN
FLUENCES  ON YOUR QUERY..."
670 DATA "YOUR HOPES AND FEARS ARE REFLE
CTED IN   THIS CARD..."
680 DATA "AND, FROM THESE, IN REPLY, THI
S CARD    POINTS TOWARDS AN ANSWER..."
690 REM *********
700 REM CARD DATA
710 DATA "THE FOOL: NEW BEGINNINGS AND C
HALLENGES"
720 DATA "THE MAGICIAN: OUTWARD PROGRESS
,         DECISIONS TO BE MADE..."

****************************************
THIS IS SOMETHING IN THE PAST THAT IS
RELEVANT TO YOUR QUESTION...
            ----------
THE SUN: A GOAL WITHIN REACH, LIGHT
AFTER DARKNESS...
****************************************

730 DATA "THE HIGH PRIESTESS: WISDOM, A
PROBLEM   WILL BE SIMPLIFIED..."
740 DATA "THE EMPRESS: A STABLE SITUATIO
N, GOOD   FORTUNE..."
750 DATA "THE EMPEROR: GOALS WILL BE REA
CHED,     BEWARE OF RUTHLESSNESS..."
760 DATA "THE HIGH PRIEST: LISTEN TO ADV
ICE,      UNDERSTANDING LIKELY..."
770 DATA "THE LOVERS: A POSITIVE DECISIO
N LIKELY, RELATIONSHIPS PROSPER..."
780 DATA "THE CHARIOT: A GOOD STAGE IN Y
OUR LIFE  ATTAINED, TRAVEL LIKELY..."
790 DATA "JUSTICE: BALANCE WILL BE REACH
ED,       DUE REWARD LIKELY..."
800 DATA "THE HERMIT: REVALUATION OF PRI
ORITIES   INDICATED, INNER GROWTH"
810 DATA "WHEEL OF FORTUNE: GROWTH, LUCK
,         DECISIONS TO BE MADE..."
820 DATA "STRENGTH: YOUR INNER QUALITIES
 WILL     ENSURE YOU MEET THE TEST..."
830 DATA "HANGED MAN: CAST AWAY MATERIAL
 VALUES,  SACRIFICE REWARDED..."
840 DATA "DEATH: FRESH AWARENESS WILL CO
ME FROM   TEMPORARY SETBACKS..."
850 DATA "ANGEL OF TIME (TEMPERANCE): MO
DERATION  DEMANDED; WISE CHOICE SEEN"
860 DATA "THE DEVIL: BE WARY OF GIVING I
N TOO     EASILY TO YOUR WHIMS"
870 DATA "THE TOWER: UNFORTUNATE INDICAT
IONS,     REGROWTH CAN BE EXPECTED.."
880 DATA "THE STAR: VERY POSITIVE, FRESH
          DEVELOPMENTS SEEN..."
890 DATA "THE MOON: TRUST YOUR HEART RAT
HER THAN  YOUR HEAD..."
900 DATA "THE SUN: A GOAL WITHIN REACH,
LIGHT     AFTER DARKNESS..."
910 DATA "JUDGEMENT: A PERIOD OF FRESH B
EGINNINGS AND ASSESSING VALUES..."
920 DATA "THE WORLD: COMPLETION OF A DIF
FICULT    TASK, ATTAINMENT OF A GOAL"
```

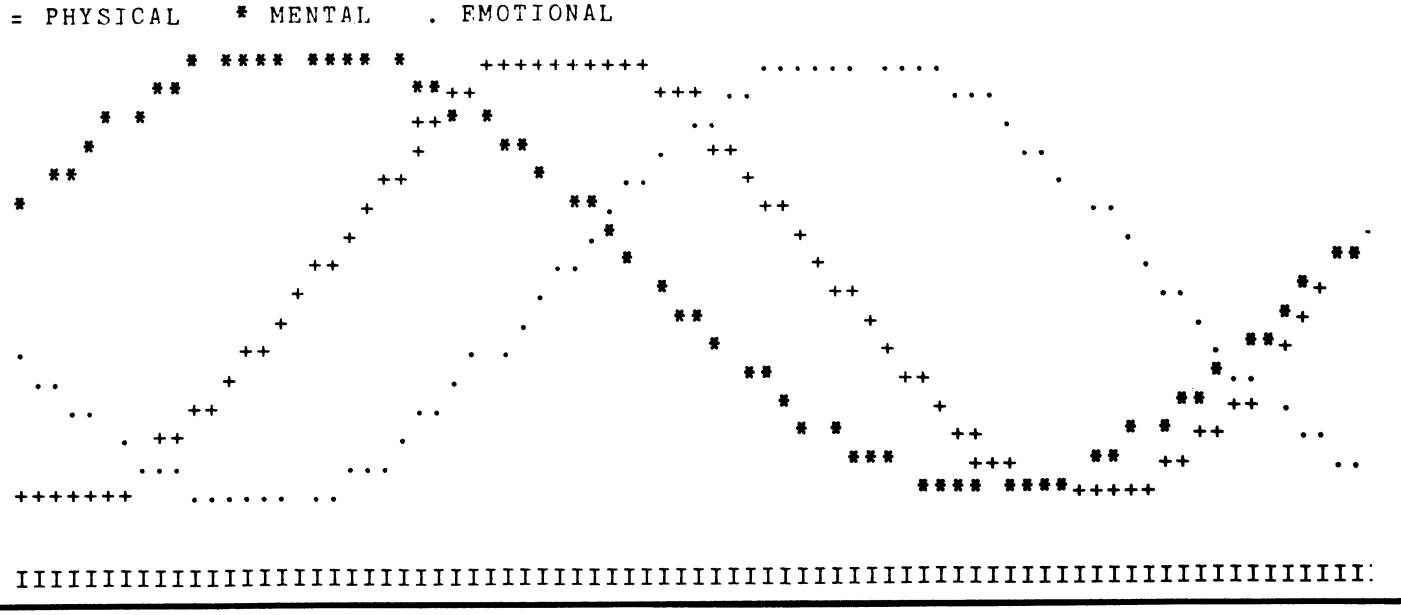
The Biorhythm Calculator

What does 1987 hold in store for you? While you may not, perhaps, wish to rely to much on the insights gained from our Celtic Tarot program, the 'science' of biorhythms may tell you much more.

In this program, written by Ian Hutt, you just enter your date of birth, the current month and year, and the program cleverly charts your physical, mental and emotional peaks and troughs for the coming month. Note that in lines 210 and 220, you may need to change the 80 and 24, into the number of characters across on the screen (the 'line length') and the number of lines the screen can hold (the 'page length'). This ensures that the printed chart will fit properly on your screen.

```
PLEASE ENTER YOUR DATE OF BIRTH:

     MONTH (1 to 12)? 3
     DAY   (1 to 31)? 17
     YEAR  (AS 1988)? 63

PLEASE ENTER THE CURRENT MONTH, YEAR:

     MONTH (1 TO 12)? 4
     YEAR  (AS 1988)? 87


PLEASE STAND BY WHILE I WORK IT OUT...
```

```
10 REM THE BIORHYTHM CALCULATOR
20 REM       By Ian Hutt
30 REM (c) Interface Publications, 1986
40 REM **********
50 GOSUB 160:REM INITIALISE
60 GOSUB 360:REM ENTER DETAILS
70 GOSUB 490:REM CALCULATE
80 GOSUB 800:REM PLOT
90 GOSUB 700:REM ASK AGAIN
100 REM ****************
110 IF A$="Y" THEN RUN
120 PRINT:PRINT "OK, BYE..."
130 END
140 REM **********
150 REM INITIALISE
160 CLS:PRINT:PRINT
170 PRINT TAB(14);"BIORHYTHMS"
180 PRINT:PRINT:PRINT TAB(11);"PLEASE ST
AND BY..."
190 REM * PUT THE VALUES OF YOUR OWN    *

200 REM * SYSTEM IN THE NEXT TWO LINES *

210 LL=80:REM LINE LENGTH
220 PL=24:REM PAGE LENGTH
230 PL=PL-2
240 SX=LL/255
250 SY=PL/170
260 DIM S$(LL,PL)
270 FOR X=1 TO LL
280 FOR Y=1 TO PL
290 S$(X,Y)=" ":REM ONE SPACE          ▷
```



The Biorhythm Calculator

```
300 NEXT Y
310 NEXT X
320 RESTORE
330 RETURN
340 REM **************
350 REM ENTER DETAILS
360 CLS:PRINT:PRINT
370 PRINT "PLEASE ENTER YOUR DATE OF BIR
TH:":PRINT
380 PRINT TAB(5);"MONTH (1 to 12)";:INPU
T B
390 IF B<1 OR B>12 THEN 380
400 PRINT TAB(5);"DAY   (1 to 31)";:INPU
T A
410 IF A<1 OR A>31 THEN 400
420 PRINT TAB(5);"YEAR  (AS 1988)";:INPU
T C
430 PRINT:PRINT "PLEASE ENTER THE CURREN
T MONTH, YEAR:":PRINT
440 PRINT TAB(5);"MONTH (1 TO 12)";:INPU
T D
450 IF D<1 OR D>12 THEN 440
460 PRINT TAB(5);"YEAR  (AS 1988)";:INPU
T E
470 RETURN
480 REM *********
490 REM CALCULATE
500 PRINT:PRINT
510 PRINT "PLEASE STAND BY WHILE I WORK
IT OUT..."
520 T=INT(((E-C)*365.25)+((D-B)*30.35)-A
)
530 FOR R=1 TO 255
540 IF S$(SX*R,1)=" " THEN S$(SX*R,1)="-
"
550 IF R=INT(R/B)*B THEN S$(SX*R,1)="I"
560 NEXT R
570 FOR R=1 TO 3
580 READ U,C$
590 L=2*3.14159*(T-(INT(T/U)*U))/U
600 K=2*3.14159*(33-U)*.3
610 PRINT L;K;
620 FOR A=L TO K+L+(2*3.14159) STEP .1
630 X=SX*((A-L)*(35-28+U))
640 Y=SY*(90+SIN(A)*60)
650 IF X>0 AND Y>0 AND X<=LL AND Y<=PL T
HEN S$(X,Y)=C$
660 NEXT A
670 NEXT R
680 RETURN
690 REM *********
700 REM ASK AGAIN
710 REM  * PRESS A KEY FOR END *
720 IF INKEY$<>"" THEN 720
730 IF INKEY$="" THEN 730
740 PRINT:PRINT "DO YOU WANT ANOTHER GO
(Y OR N)?"
750 A$=INKEY$
760 IF A$<>"N" AND A$<>"Y" THEN 750
770 RETURN
780 REM ***************
790 REM PLOT SUBROUTINE
800 CLS
810 PRINT "= PHYSICAL   * MENTAL   . EMO
TIONAL"
820 FOR Y=PL TO 1 STEP -1
830 FOR X=1 TO LL
840 PRINT S$(X,Y);
850 NEXT X
860 NEXT Y
870 RETURN
880 REM ***************
890 REM DATA FOR CYCLES
900 DATA 23,"+",28,".",33,"*"
```

Notes and Ideas –

ARTIFICIAL STUPIDITY

AN ENORMOUS AMOUNT *of energy is now being spent to get computers to behave in ways which appear stupid.* Artificial Stupidity (AS) *research has looked into many of the simple human exhibitions of stupidity, such as games playing. This research has produced some outstanding and important results, such as those toy bears which grunt back at you when you grunt at them, and computers which refuse to recognise the command* LUST *for* LIST, *or* RUIN *for* RUN.

In this section of our Program Present, *we'll look at two prime examples of* AS.

Medici — Personal Checkup

Instead of going to a doctor, you can save Medicare lots of money, and use our Medici program to see how long you are going to live. Just answer the questions, and Medici will give you an estimate of your lifespan. Note that the results should be taken with a pinch of salt (but not too much, because salt is bad for your blood pressure).

```
10 REM MEDICI - PERSONAL CHECKUP
20 REM (C) TIM HARTNELL, 1986
30 REM INTERFACE PUBLICATIONS
40 CLS
50 GOSUB 1270
60 PRINT "A - I AM BADLY OVERWEIGHT"
70 PRINT "B - I AM FAIRLY OVERWEIGHT"
80 PRINT "C - I AM SLIGHTLY OVERWEIGHT"
90 PRINT "D - MY WEIGHT IS ABOUT RIGHT"
100 PRINT "E - I AM THINNER THAN I SHOUL
D BE"
110 GOSUB 1190
120 WEIGHT=5*(ASC(A$)-68):IF A$="E" THEN
 WEIGHT=0
130 PRINT WEIGHT
140 GOSUB 1270
150 PRINT "I ENGAGE IN EXERCISE, THAT"
160 PRINT "RAISES MY HEARTBEAT TO 120 OR
 MORE,"
170 PRINT "FOR AT LEAST THE FOLLOWING NU
MBER"
180 PRINT TAB(8);"OF HOURS A WEEK:"
190 PRINT
200 PRINT "A - LESS THAN A QUARTER"
210 PRINT "B - MORE THAN A QUARTER, UP T
O              THREE-QUARTERS"
```

▷

Medici — Personal Checkup

```
220 PRINT "C - FROM THREE-QUARTERS OF AN
 HOUR           UP TO ONE AND A HALF"
230 PRINT "D - FROM ONE AND A HALF TO
               TWO AND A HALF"
240 PRINT "E - MORE THAN TWO AND A HALF
HOURS"
250 GOSUB 1190
260 EXERCISE=5*(ASC(A$)-63)-5:IF A$="A"
THEN EXERCISE=0
270 PRINT EXERCISE
280 GOSUB 1270
290 PRINT "WHEN DRIVING:":PRINT
300 PRINT "A - I HARDLY EVER WEAR A SEAT
 BELT"
310 PRINT "B - I WEAR A SEAT BELT AROUND
 A QUARTER      OF THE TIME"
320 PRINT "C - I WEAR A SEAT BELT EVERY
SECOND          JOURNEY"
330 PRINT "D - I WEAR A SEAT BELT FOR MO
ST, BUT NOT     ALL TRIPS"
340 PRINT "E - I ALWAYS WEAR A SEAT BELT
"
350 GOSUB 1190
360 SEATBELT=2*(ASC(A$)-65)
370 PRINT SEATBELT
380 GOSUB 1270
390 PRINT "I AM CONSCIOUS OF NUTRITION A
ND TRY      TO EAT HEALTHILY:"
400 PRINT
410 PRINT "A - ALL THE TIME"
420 PRINT "B - NEARLY ALL THE TIME"
430 PRINT "C - A FAIR PROPORTION OF THE
TIME"
440 PRINT "D - FROM TIME TO TIME"
450 PRINT "E - HARDLY AT ALL"
460 GOSUB 1190
470 DIET=-ASC(A$)+69
480 PRINT DIET
490 GOSUB 1270
500 PRINT "SMOKING (A CIGAR COUNTS AS A
CIGARETTE)"
510 PRINT
520 PRINT "A - NOT AT ALL"
530 PRINT "B - LESS THAN 15 CIGARETTES A
 DAY"
540 PRINT "C - 15 TO 25 CIGARETTES A DAY
"
550 PRINT "D - 26 TO 42 CIGARETTES A DAY
"
560 PRINT "E - MORE THAN 42 CIGARETTES A
 DAY"
570 GOSUB 1190
580 SMOKING=-7*(ASC(A$)-65)
590 PRINT SMOKING
600 GOSUB 1270
610 PRINT "ALCOHOL - HOW MANY DRINKS (ON
 AVERAGE)  DO YOU HAVE EACH DAY?"
620 PRINT
630 PRINT "A - NONE"
640 PRINT "B - LESS THAN 3"
650 PRINT "C - 3 TO 6"
660 PRINT "D - 7 TO 9"
670 PRINT "E - MORE THAN 9"
680 GOSUB 1190
690 DRINK=-30
700 IF A$="A" THEN DRINK=0
710 IF A$="B" THEN DRINK=1
720 IF A$="C" THEN DRINK=DRINK/5
730 IF A$="D" THEN DRINK=DRINK/2
740 PRINT DRINK
750 GOSUB 1270
760 PRINT "IN GENERAL, HOW STRESSFUL WOU
LD YOU SAY";
770 PRINT "YOUR LIFE HAS BEEN IN THE PAS
T 6 MONTHS"
780 PRINT
790 PRINT "A - EXTREMELY STRESSFUL"
800 PRINT "B - FAIRLY STRESSFUL"
810 PRINT "C - SLIGHTLY STRESSFUL"
820 PRINT "D - NEUTRAL"
830 PRINT "E - NOT STRESSFUL"
840 GOSUB 1190
850 STRESS=INT(2.5*(ASC(A$)-69))
860 PRINT STRESS
870 GOSUB 1320:CLS
880 PRINT "PERSONAL ASSESSMENT FROM MEDI
CI:"
890 PRINT
900 PRINT TAB(8);"WEIGHT:"WEIGHT
910 PRINT TAB(6);"EXERCISE:"EXERCISE
920 PRINT TAB(4);"CAR SAFETY:"SEATBELT
930 PRINT TAB(5);"NUTRITION:"DIET
940 PRINT TAB(7);"SMOKING:"SMOKING
950 PRINT TAB(7);"ALCOHOL:"DRINK
960 PRINT TAB(8);"STRESS:"STRESS
970 GOSUB 1320
980 ANT=WEIGHT+EXERCISE+SEATBELT+HEARTBE
AT+DIET+SMOKING+DRINK+STRESS
990 GOSUB 1320:PRINT
1000 PRINT "    YOUR RAW RATING IS "ANT:
PRINT
1010 PRINT "  ON A SCALE WHERE ZERO IS A
VERAGE,"
1020 PRINT "THE LOWEST RATING IS BELOW -
80, AND"
1030 PRINT "   THE HIGHEST IS OVER 30"
1040 GOSUB 1320:PRINT
```

Medici — Personal Checkup

```
WHICH OF THE FOLLOWING IS CLOSEST
TO THE TRUTH (SELECT ONE):

I ENGAGE IN EXERCISE, THAT
RAISES MY HEARTBEAT TO 120 OR MORE,
FOR AT LEAST THE FOLLOWING NUMBER
       OF HOURS A WEEK:

A - LESS THAN A QUARTER
B - MORE THAN A QUARTER, UP TO
    THREE-QUARTERS
C - FROM THREE-QUARTERS OF AN HOUR
    UP TO ONE AND A HALF
D - FROM ONE AND A HALF TO
    TWO AND A HALF
E - MORE THAN TWO AND A HALF HOURS

           OK     B
 10
WHICH OF THE FOLLOWING IS CLOSEST
TO THE TRUTH (SELECT ONE):

SMOKING (A CIGAR COUNTS AS A CIGARETTE)

A - NOT AT ALL
B - LESS THAN 15 CIGARETTES A DAY
C - 15 TO 25 CIGARETTES A DAY
D - 26 TO 42 CIGARETTES A DAY
E - MORE THAN 42 CIGARETTES A DAY

           OK     B
-7

WHICH OF THE FOLLOWING IS CLOSEST
TO THE TRUTH (SELECT ONE):

ALCOHOL - HOW MANY DRINKS (ON AVERAGE)
DO YOU HAVE EACH DAY?

A - NONE
B - LESS THAN 3
C - 3 TO 6
D - 7 TO 9
E - MORE THAN 9

           OK     E
-30
```

```
1050 IF ANT<6 AND ANT>-6 THEN A$="AVERAG
E":L$="62 TO 73   72 TO 78"
1060 IF ANT<-5 AND ANT>-21 THEN A$="BELO
W AVERAGE":L$="60 TO 66   65 TO 71"
1070 IF ANT<-20 THEN A$="POOR":L$="60 OR
 LESS 65 OR LESS"
1080 IF ANT<-45 THEN A$="VERY POOR"
1090 IF ANT<-60 THEN A$="VERY, VERY POOR
"
1100 IF ANT>5 AND ANT<15 THEN A$="GOOD":
L$="74 TO 80   79 TO 85"
1110 IF ANT>14 THEN A$="EXTREMELY GOOD":
L$="81 PLUS    86 PLUS"
1120 PRINT "THIS INDICATES YOUR HEALTH S
TATUS       IS ";A$
1130 PRINT
1140 PRINT "LIFE EXPECTANCY:"
1150 PRINT TAB(3);"MALE       FEMALE"
1160 PRINT TAB(3);L$
1170 END
1180 REM ************
1190 REM ACCEPT INPUT
1200 IF INKEY$<>"" THEN 1200
1210 A$=INKEY$
1220 IF A$<"A" OR A$>"E" THEN 1210
1230 PRINT:PRINT TAB(12);"OK    ";A$
1240 RETURN
1250 REM ***************
1260 REM DELAY/SPACE OUT
1270 FOR J=1 TO 1000:NEXT J
1280 CLS
1290 PRINT:PRINT:PRINT:PRINT
1300 PRINT "WHICH OF THE FOLLOWING IS CL
OSEST       TO THE TRUTH (SELECT ONE):"
1310 PRINT
1320 FOR J=1 TO 400:NEXT J
1330 RETURN
1340 REM ****************************
1350 REM     MEDICI DATA SOURCES
1360 REM ****************************
1370 REM SOCIAL READJUSTMENT RATING
         SCALE; DR THOMAS HOLMES
1380 REM METROPOLITAN LIFE INSURANCE
         COMPANY
1390 REM 'LIFE PLAN FOR YOUR HEALTH'
         DR DONALD VICKERY
1400 REM       ADDISON-WESLEY, 1978
1410 REM NEW AGE TRAINING FOR FITNESS
         AND HEALTH - DYVEKE SPINO
1420 REM       GROVE HOUSE INC., 1979
1430 REM ****************************
```

Intelligent Noughts and Crosses

Our 'intelligent' Noughts and Crosses program develops a playing strategy as it runs. When you first run it, the program knows how to play the game, including enough knowledge to try and block a row of three being made by an opponent, or to complete its own row of three. But it knows nothing else about the way it should play. It doesn't even know that it should move into the centre position if it is free.

But play a few games with it, especially letting it win for a while, and it will quickly develop some strategy. As well, it shows you the relative values it has given to each position on the board, after each game, so you can actually see it learning.

Here's the board layout:

```
1 : 2 : 3
---------
4 : 5 : 6
---------
7 : 8 : 9
```

When I ran this program against an opponent playing totally at random, it took only 12 games before it had learned that position five, the central one, was the most valuable one on the board. You should see a similar quick development in its strategy when you play. If you want to set up a 'random opponent', just add those additional lines number 2000 to 2070, headed RANDOM OPPONENT, and change line 190 into GOSUB 2000. Then settle back and watch Artificial Stupidity in action.

```
2000 REM RANDOM OPPONENT
2010 H=0
2020 H=H+1
2030 MVE=RND(9)
2040 IF A(MVE)=32 THEN A(MVE)=ASC("X"):R
ETURN
2050 IF H<100 THEN 2020
2060 R$="D"
2070 RETURN
```

```
10 REM 'Intelligent' Noughts & Crosses
20 REM    (c) Tim Hartnell,
       Interface Publictions, 1986
30 GOSUB 1190:REM INITIALISE
40 REM *** PREGAME SETTINGS ***
50 FOR J=1 TO 9
60 A(J)=32
70 NEXT J
80 FOR J=1 TO 5
90 D(J)=0
100 NEXT J
110 COUNT=0
120 R$=""
130 GOSUB 1080:REM PRINT BOARD
140 REM *** MAIN CYCLE ***
150 GOSUB 550:REM MACHINE MOVE
160 GOSUB 1080:REM PRINT BOARD
170 GOSUB 880:REM WIN CHECK
180 IF R$<>"" THEN 250
190 GOSUB 990:REM ACCEPT HUMAN MOVE
200 GOSUB 1080:REM PRINT BOARD
210 GOSUB 880:REM WIN CHECK
220 IF R$="" THEN 150
230 REM *** END MAIN CYCLE ***
240 REM ***********
250 REM END OF GAME
260 GOSUB 1080:REM PRINT BOARD
270 PRINT:PRINT
280 IF R$="W" THEN PRINT TAB(8);"I WIN":
FLAG=-1
290 IF R$="L" THEN PRINT TAB(8);"YOU WIN
":FLAG=1
300 IF R$="D" THEN PRINT TAB(6);"IT'S A
DRAW":GOTO 440
310 REM UPDATE KNOWLEDGE BASE
320 FOR B=1 TO 5
330 FOR J=2 TO 9
340 IF M(J)=D(B) THEN GOSUB 380
350 NEXT J
360 NEXT B
370 GOTO 440
380 REM ** RE-ORDER ELEMENTS OF M ARRAY
**
390 TEMP=M(J+FLAG)
400 M(J+FLAG)=M(J)
410 M(J)=TEMP
420 J=9
430 RETURN
440 PRINT:PRINT
450 PRINT "THIS IS MY UPDATED PRIORITY"
460 PRINT:PRINT
470 FOR J=1 TO 9
480 PRINT M(J);" ";
```

Intelligent Noughts and Crosses

```
490 NEXT J
500 PRINT:PRINT
510 PRINT "PRESS RETURN TO CONTINUE"
520 INPUT A$
530 GOTO 40
540 REM ************
550 REM MACHINE MOVE
560 P=ASC("O")
570 X=0
580 J=1
590 IF A(W(J))=A(W(J+1)) AND A(W(J+2))=3
2 AND A(W(J))=P THEN X=W(J+2):GOTO 760
600 IF A(W(J))=A(W(J+2)) AND A(W(J+1))=3
2 AND A(W(J))=P THEN X=W(J+1):GOTO 760
610 IF A(W(J+1))=A(W(J+2)) AND A(W(J))=3
2 AND A(W(J+1))=P THEN X=W(J):GOTO 760
620 IF J<21 THEN J=J+3:GOTO 590
630 IF P=ASC("O") THEN P=ASC("X"):GOTO 5
80
640 REM ** IF NO WIN/BLOCK MOVE FOUND **

650 REM ** THEN THIS NEXT SECTION USED *
*
660 J=1
670 IF A(M(J))=32 THEN X=M(J):GOTO 760
680 IF J<10 THEN J=J+1:GOTO 670
690 H=0
700 H=H+1
710 X=INT(RND(1)*9):IF A(X)=32 THEN 760
720 IF H<100 THEN 700
730 R$="D":REM IT IS A DRAW
740 RETURN
750 REM **********
760 REM MAKE MOVE
770 A(X)=ASC("O")
780 COUNT=COUNT+1
790 D(COUNT)=X
800 FLAG=0
810 FOR J=1 TO 9
820 IF A(J)=32 THEN FLAG=1
830 NEXT J
840 IF FLAG=0 AND R$="" THEN R$="D"
850 REM IF ALL POSITIONS FULL, AND R$ NO
T ASSIGNED, IT IS A DRAW
860 RETURN
870 REM **********
880 REM WIN CHECK
890 J=1
900 IF A(W(J))=32 THEN J=J+3
910 IF J>23 THEN RETURN
920 IF A(W(J))=A(W(J+1)) AND A(W(J))=A(W
(J+2)) THEN 950
930 IF J<22 THEN J=J+3:GOTO 900
940 RETURN
950 IF A(W(J))=ASC("O") THEN R$="W":REM
MACHINE WINS
960 IF A(W(J))=ASC("X") THEN R$="L":REM
MACHINE LOSES
970 RETURN
980 REM **********
990 REM HUMAN MOVE
1000 PRINT:PRINT
1010 PRINT "ENTER YOUR MOVE"
1020 INPUT MOVE
1030 IF MOVE<1 OR MOVE>9 THEN 1020
1040 IF A(MOVE)<>32 THEN 1020
1050 A(MOVE)=ASC("X")
1060 RETURN
1070 REM ************
1080 REM PRINT BOARD
1090 CLS
1100 PRINT:PRINT:PRINT
1110 PRINT "1 : 2 : 3   ";CHR$(A(1));" :
 ";CHR$(A(2));" : ";CHR$(A(3))
1120 PRINT "---------   ---------"
1130 PRINT "4 : 5 : 6   ";CHR$(A(4));" :
 ";CHR$(A(5));" : ";CHR$(A(6))
1140 PRINT "---------   ---------"
1150 PRINT "7 : 8 : 9   ";CHR$(A(7));" :
 ";CHR$(A(8));" : ";CHR$(A(9))
1160 PRINT
1170 RETURN
1180 REM ***************
1190 REM INITIALISATION
1200 CLS
1210 DIM A(9):REM BOARD
1220 DIM M(10):REM TO HOLD KNOWLEDGE BAS
E
1230 DIM W(24):REM WIN/BLOCK DATA
1240 DIM D(5):REM TO HOLD MOVES IN CURRE
NT GAME
1250 REM WIN/BLOCK DATA
1260 FOR J=1 TO 24
1270 READ W(J)
1280 NEXT J
1290 DATA 1,2,3,4,5,6,7,8,9
1300 DATA 1,4,7,2,5,8,3,6,9
1310 DATA 1,5,9,3,5,7
1320 REM INITIAL KNOWLEDGE BASE
1330 FOR J=1 TO 10
1340 READ M(J)
1350 NEXT J
1360 DATA 2,6,8,4,7,3,1,9,5,2
1370 RETURN
```

The YC Perpetual Calendar

Now you can print out, on the screen or on your printer, a calendar for every year from 1987 to enternity. Just enter the last two digits of the year you want (so enter '87' for 1987) and the program will do the rest.

```
C A L E N D A R

Enter the year you want (after 1900) as
the final two digits: 19..
? 87
```

```
          January 1987
---------------------------
Mon Tue Wed Thu Fri Sat Sun
---------------------------
                1   2   3   4
  5   6   7   8   9  10  11
 12  13  14  15  16  17  18
 19  20  21  22  23  24  25
 26  27  28  29  30  31
---------------------------
```

```
          February 1987
---------------------------
Mon Tue Wed Thu Fri Sat Sun
---------------------------
                            1
  2   3   4   5   6   7   8
  9  10  11  12  13  14  15
 16  17  18  19  20  21  22
 23  24  25  26  27  28
---------------------------
```

```
          March 1987
---------------------------
Mon Tue Wed Thu Fri Sat Sun
---------------------------
                            1
  2   3   4   5   6   7   8
  9  10  11  12  13  14  15
 16  17  18  19  20  21  22
 23  24  25  26  27  28  29
 30  31
---------------------------
```

```
10 REM THE Y.C. PERPETUAL CALENDAR
20 REM (c) Tim Hartnell,
     Interface Publications, 1986
30 CLS
40 RESTORE 620
50 PRINT:PRINT:PRINT:PRINT:PRINT
60 PRINT "C A L E N D A R":PRINT:PRINT:P
RINT
70 PRINT "Enter the year you want (after
 1900) as the final two digits: 19.."
80 INPUT Y$
90 IF LEN(Y$)=4 THEN Y=VAL(RIGHT$(Y$,2))
:GOTO 120
100 IF LEN(Y$)=2 THEN Y=VAL(Y$):GOTO 120

110 PRINT ">> Incorrect input format":PR
INT:GOTO 70
120 CLS:PRINT:PRINT:PRINT:PRINT
130 PRINT "Do you want a copy to your pr
inter      as well (Y or N)?"
140 INPUT K$
150 IF K$<>"N" AND K$<>"n" AND K$<>"Y" A
ND K$<>"y" THEN 140
160 CLS
170 P=0:IF K$="y" OR K$="Y" THEN P=1
180 IF P=0 THEN 210
190 PRINT "Position paper at next serati
on, then   press the <RETURN> key"
200 INPUT G$:LPRINT:LPRINT:LPRINT
210 D=1
220 PRINT:PRINT "Press <RETURN> to start
 print out"
230 INPUT G$
240 CLS
250 FOR A=1901 TO 1900+Y-1
260 IF A/4=INT(A/4) AND A/1000<>INT(A/10
00) THEN D=D+366:GOTO 280
270 D=D+365
280 NEXT A
290 E=D-7*INT(D/7)
300 FOR M=1 TO 12
310 IF M=1 THEN 330
320 INPUT G$
330 READ M$,L
340 IF Y/4=INT(Y/4) AND M$="February" TH
EN L=29
350 PRINT TAB(20-LEN(M$)/2);M$;1900+Y
360 IF P=1 THEN LPRINT TAB(20-LEN(M$)/2)
;M$;1900+Y
370 PRINT TAB(10);STRING$(27,"-")
380 IF P=1 THEN LPRINT TAB(10);STRING$(2
7,"-")
```

The YC Perpetual Calendar

```
390 PRINT TAB(10);"Mon Tue Wed Thu Fri S
at Sun"
400 IF P=1 THEN LPRINT TAB(10);"Mon Tue
Wed Thu Fri Sat Sun"
410 PRINT TAB(10);STRING$(27,"-")
420 IF P=1 THEN LPRINT TAB(10);STRING$(2
7,"-")
430 FOR A=1 TO L
440 IF A<10 THEN PRINT TAB(11+E*4);A; EL
SE PRINT TAB(10+E*4);A;
450 IF A<10 AND P=1 THEN LPRINT TAB(11+E
*4);A;
460 IF P=1 AND A>9 THEN LPRINT TAB(10+E*
4);A;
470 E=E+1
480 IF E=7 THEN E=0
490 NEXT A
500 PRINT
510 PRINT TAB(10);STRING$(27,"-")
520 IF P=1 THEN LPRINT TAB(10);STRING$(2
7,"-")
530 PRINT:PRINT:PRINT
540 IF P=1 THEN LPRINT:LPRINT:LPRINT
550 NEXT M
560 PRINT:PRINT
570 IF INKEY$<>"" THEN 570
580 PRINT "Input 'A' to run again, or ju
st the     <RETURN> key to end"
590 INPUT J$
600 IF J$="a" OR J$="A" THEN RUN
610 END
620 DATA "January",31,"February",28,"Mar
ch",31
630 DATA "April",30,"May",31,"June",30,"
July",31
640 DATA "August",31,"September",30,"Oct
ober",31
650 DATA "November",30,"December",31
```

April 1987

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

May 1987

Mon	Tue	Wed	Thu	Fri	Sat	Sun
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June 1987

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

July 1987

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Sit down, take a deep breath, and relax!

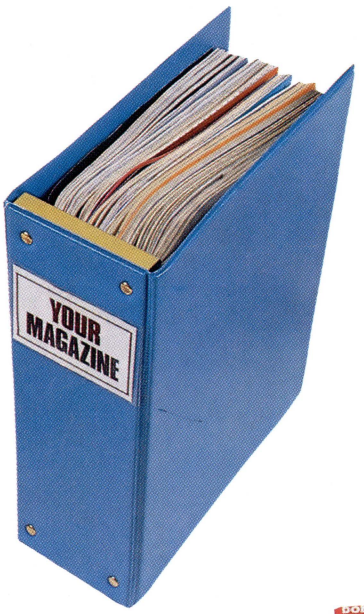
Your Computer has just taken the hassle out of buying a computer —

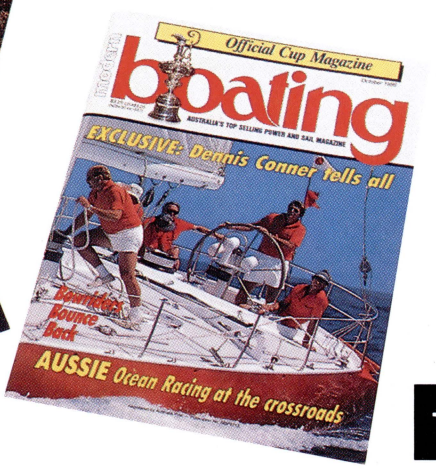
Available at your Newsagent now!

Or simply send $4.50 plus $1.50 post and packing to The Federal Publishing Co, PO Box 227, Waterloo 2017 NSW.

Can't Find It? File It!

These attractive, ready to use, skyblue vinyl binders have been specially designed to hold and protect 12 of your valuable magazine collection in the easy clip-in fastener wires.





THE IDEAL GIFT FOR REGULAR READERS!

Please send me ..... @ $8.00 each = $.
PLUS postage & handling @ $2.90 each = $.
For ..... TOTAL
(Magazine Name)

( ) I enclose my cheque/money order (with this form in an envelope) for $ .....

(make cheques payable to: The Federal Publshing Co.)
Mail Post Free in Australia to:

Federal Direct Freepost No. 4
P.O. Box 227 Waterloo, N.S.W. 2017

( ) Charge my ( ) Bankcard ( ) Mastercard ( ) Amex
( ) Visa with $ ..... Expiry / /

Card No. | | | | | | | | | | | | | | | | |

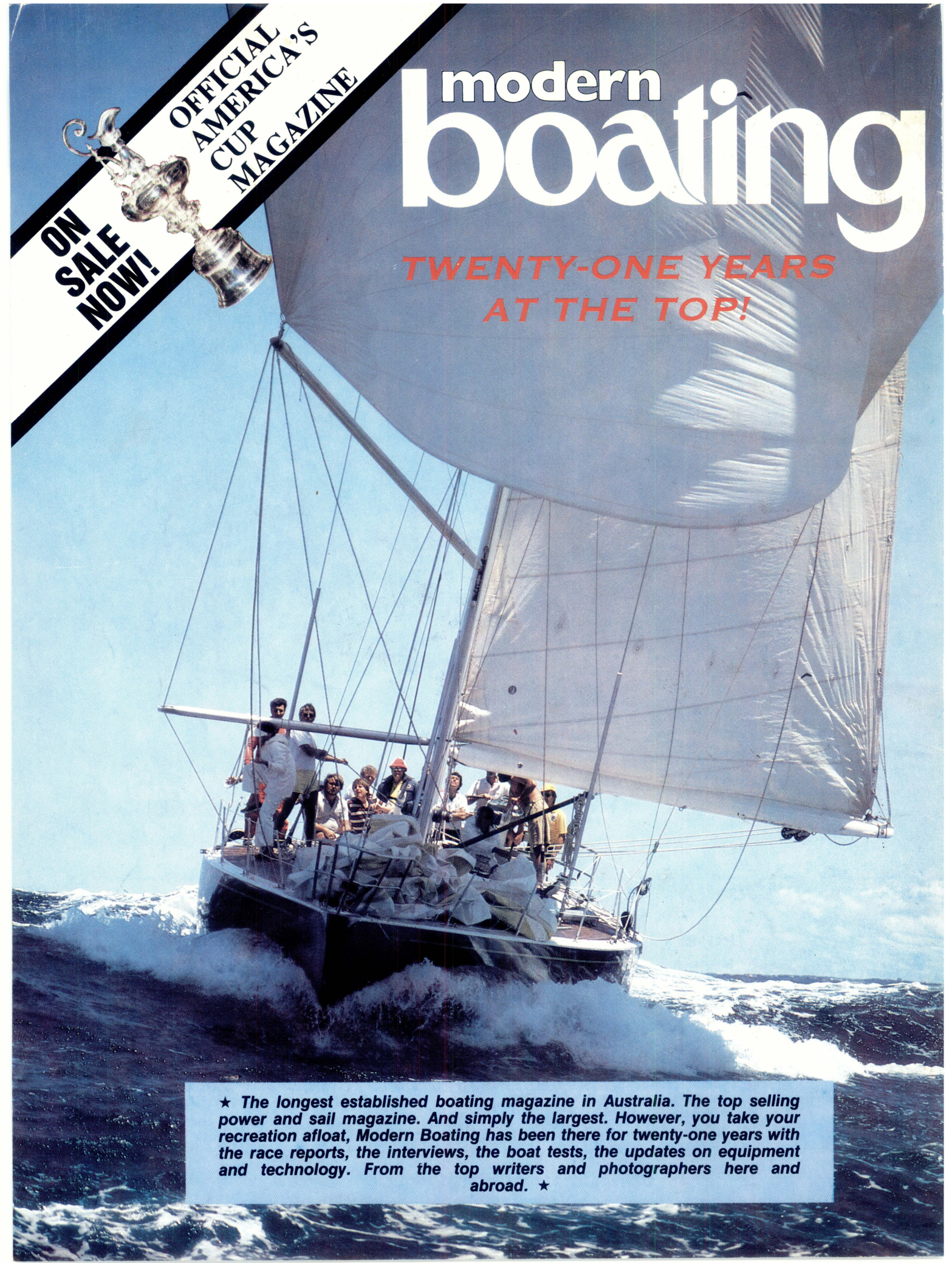
Signature: .....
(Unsigned orders cannot be accepted)

Name: .....
Mr/Mrs/Miss/Ms Initial Surname

Address: .....

..... Postcode .....

Date of Order: / / Telephone ( ) .....


OFFICIAL AMERICA'S CUP MAGAZINE
ON SALE NOW!
modern boating
TWENTY-ONE YEARS AT THE TOP!
★ The longest established boating magazine in Australia. The top selling power and sail magazine. And simply the largest. However, you take your recreation afloat, Modern Boating has been there for twenty-one years with the race reports, the interviews, the boat tests, the updates on equipment and technology. From the top writers and photographers here and abroad. ★